The Journal

American Medical Association

Edited for the Association Under the Direction of the Board of Trustees by

GEORGE H. SIMMONS, M.D., LL.D.

VOLUME 71 : : : : : : JULY—DECEMBER, 1918

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OCT 29 1940

The Journal of the
American Medical Associat

Published Under the Auspices of the Board of Trus:ees

Vol. 71, No. 1 Chicago, Illinois

THE CAMPAIGN AGAINST INFANTILE TUBERCULOSIS IN FRANCE

AND THE PRESERVATION OF CHILDHOOD AGAINST ITS RAVAGES BY THE SYSTEM OF THE "ŒUVRE GRANCHER"

PAUL ARMAND-DE LILLE, M.D.
Médecin des Hôpitaux de Paris; Médecin Major de l'Armée Française; on Special Mission to the United States
PARIS, FRANCE

Tuberculosis is an infection unhappily too frequent in France—as well as in all other countries—though not having the extent that has been attributed to it by certain unthinking or ill willed publicists who apparently have wished to convey the impression that France is a country sanitarily and morally decadent.

One can understand easily, today, that France has retained her former virtues, as demonstrated by her valor on the field of battle and her sacrifices for the defense of the right and liberty of the world.

France unfortunately counts a certain number of the tuberculous, in proportion relatively small, but nevertheless sufficient to contribute a grave danger to her reconstruction after the war. In the same manner in which you are here to aid us on the field of battle, you desire to aid us in saving the generations of tomorrow.

If one refers to the most recent statistics, with the reserve always necessary because of the personal equation in medical diagnosis, especially in those forms in which bacilli are not demonstrated, *one can* say that among 37,000,000 inhabitants in France *only* 250,000 persons are suffering from tuberculosis. This is based on the following figures: The military statistics, which naturally include all the *men from 18 to 48* years, give us the figure of 85,000 invalided from the army because of tuberculosis. This number may be considered as absolutely a *maximum*, because it includes a definite percentage of men who passed the examining board twice before they were declared unfit for service, and that a certain number of suspects are taken a second time. Further, one may consider that the number is practically the same for the women. There is a maximum figure of 30,000 for persons over 48, and finally, at the outside limit, probably much too large, 50,000 children. This totals 250,000 and gives a percentage of 0.68. This number is infinitely less than the calumnies and untruthful statements of a certain press. Also a great number of the cases are rable, so that our death rate for tuberculosis is ably never more than 100,000 *persons per year.* heless, all physicians know that pulmonary tuberculosis is contagious from
begins to expectorate bacilli,
case, and that even if well tolera
can still be infectious to another
him a fatal form.

It is by this association with t
that children are most often infected, very
than from a bovine origin. The young
quently dies from tuberculous meningitis
which form we as yet can do nothing. In
child, the tuberculosis manifests itself sometim
granular form, often fatal, or . pulmonary type,
sionally *also as a pleural form,* in which th
nosis is bad. But the most frequent forms of
culosis in children, are well known, the loca
glandular, ostearticular or peritoneal infectio
those which are on the contrary essentially curabl
an appropriate treatment. This treatment, p
physiotherapeutic, is the marine or the sun cure,
what is better, the combination *of* the *two,*
heliomarine.

I will explain first what has been done in our
try for the cure *of tuberculous children*, or to
them, and then I will tell you what remains
done and in what manner we count on your
aid to complete the necessary measures.

EARLY EFFORTS IN CURING TUBERCULO CHILDREN

France has accomplished a great deal in thi
and many years ago, in 1847, there was four
Cette, by a charitable woman, a small hospital
seaside, comprising twenty-four beds. It was
to two other institutions, the one installed at M
in England in 1796, the other at San Rem
remember correctly, in Italy, in 1841. Never
those feeble efforts did not attract the atte
either the public or the *physicians,* and
contribution of the Maritime *Hospital* at
Mer, in Pas de Calais, which demonstrated
important influence of a *sojourn at the* seas
the cure of local manifestations of tuberculos
origin of the *hospital* of *Berck* is very curi
demonstrates the part of chance in the *prod*
scientific results at the same time as that of
tation of those results by a good observer.

The service of the Enfants assistés *in*
organized the individual placement of
nurseries in the country, a long time
order to prevent the agglomeration of
orphanages of the city. As early as
those children to certain regions
department of the de Ca
the Germans have

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that time, in the village of Berck, ers (2½ miles) from the sea, there who had apparently a real passion was continually asking that she hildren, the rachitics, and those us," that is to say, the children r *or osseous tuberculosis. This* a instinctive faith in the reaction to seashore. Every morning, even in her, the children were placed in a which she herself pushed to the were larger or strong enough ith her. When she reached er little charges, leaving them he beach, and returning them n evening came on. At the end this treatment, the little patients The results which she obtained *that they were soon noticed by* e Assistance publique. It there- to her a larger number of children she purchased a donkey cart and continued rips to the beach.

s continuing, and the number of children ng too large, she decided to construct a small ith *twenty* ve beds at the seashore itself, the art then being reserved for the provisioning little hospital. Soon the house was increased ize, and the inspector induced the Assistance ique to construct in the same district a true hos- of a hundred beds, which construction was com- in 1861. It still remains, and I myself saw *years ago, now surrounded by the great* lishment.

then only empiric treatment, directed by ian, almost ignorant, but guided by an istinct as well as by a charitable heart.

DEVELOPMENT OF THE WORK

dministration of the Assistance publique nally to send a physician for children, then d known, Dr. Bergeron, later president of démie de médecine, who was directed to nto the results obtained at this new hospital. eminent and devoted physician, the results veritable revelation. In his report, which a sensation, he demonstrated by figures, which proof, the marvelous efficiency of life in the especially sea air, for the cure of rachitic fulous children. Because of this, the Assis- ue decided to build a new hospital of 600 the direction of a physician, and it was ed in 1869. It has been increased by new since that time, and today, including superb ies, etc., cares for 2,000 patients.

eighborhood of the hospital there have been d various private clinics and villas where sy circumstances come in order to remain children, in such a way that the sta- sur-Mer, exclusively consecrated to glandular tuberculosis, today counts little patients, and its population, hysicians, employees and parents, 000 persons. Perhaps this is growth of American cities, like France, it is an inter- constructed entirely

The example given by the Paris Assistance publique at Berck was soon followed in other districts, even by private institutions, and by the cities or communities which contained a sufficient number of physicians and philanthropists, devoted to the interests of childhood, who joined together in order to coordinate their *efforts and give a safe guide to the application of this* marine cure. This federation proceeded, in 1887, to the creation of the National Association for Maritime Sanatoriums, which founded shortly afterward two hospitals, one at Banyuls-sur-Mer on the edge of the Mediterranean, and the other at St. Trojan, not far from Bordeaux, on the shore of the ocean.

Since these were founded, many others have been installed, on all the shores of France, especially at Dinard, Roscoff, Peu-Bron, Arcachon, Cape Breton, and at Hendaye, where the Assistance publique has also 1,200 beds, and on the Mediterranean at Hyères, Cavalaire, Cannes and Palavas.

HELIOTHERAPY

For the past ten years, a new therapeutic factor has been added to that of the marine cure, namely, that of heliotherapy. The treatment of sluggish lesions, and particularly of fistula, by the sun is due to Ollier, a professor of surgery of the medical school of Lyons, who recommended it since 1880: but the development of heliotherapy by external sun baths was due to the efforts of Rollier, a surgeon of French Switzerland, who has given the devotion of an apostle in spreading ~~the propaganda for this~~ extraordinarily successful method.

Encouraged by his first results, Rollier established at Leysin, at an altitude of 4,000 feet in the mountains of Switzerland near the French frontier, a series of sanatoriums where the tuberculous children are exposed entirely nude, by successive stages, to the rays of the sun. Under the influence of this treatment, the tuberculous, even those with fistula, are cured in from six to eighteen months; and the most interesting fact is that it is not necessary to make use of plaster or other apparatus except those for extension, a definite mobilization of the joint usually returning. The sun cure is now combined everywhere with the marine cure, particularly at the Mediterranean stations, where it is possible to remain out doors during all the year.

Although we have at present a great number of marine sanatoriums, they are still not sufficient to receive all the little patients in France—and for that reason we wish to increase them, much more since some of them have been taken at the present time by the Service de Santé for the treatment of tuberculosis in soldiers infected with local lesions.

For the cases of pulmonary tuberculosis among the children, for which type of case the sea air is not particularly beneficial, we have established a certain number of sanatoriums in the neighborhood of Paris, built by the Societe des enfants tuberculeuses de l'Hôpital d'Ormesson from private charity, and the station of Bevannes, supported by the Assistance publique.

There are also a certain number of clinics which exist in different localities of France. For example, the Service des rapatriés at Evian has established one under my direction, in the mountains of Savoy, which are also taken children with local tuberc for heliotherapy.

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I have spoken up to this point of active tuberculosis in children. It is now my object to tell you what is done for those children affected with latent types of tuberculosis or simply suspected of the disease.

TREATMENT OF CHILDREN WITH LATENT TUBERCULOSIS

These are discovered by the various skin reactions and by careful examinations of the tracheobronchial glands, either by auscultation or by roentgenography. It is well known that these forms are frequent, and this is also true in France, where in a study of 4,000 schoolchildren from the poor quarters of Paris, made with Dr. Grancher, we discovered approximately 15 per cent. suspects. Florid tuberculosis is naturally not present, but it is among these children that such cases will develop, sooner or later, sometimes only after puberty. It is necessary that these remain in the country throughout the entire year, in order to be strengthened by country life.

We have for these only a half measure — the so-called vacation colonies. They each year take the children from the large cities for two months and transport them to the country. In the care of a number of children, this almost suffices more or less to retard the development of the malady; but it is only a compromise, for these children whom we have strengthened in two or three months, whose weight we have increased by 2 or 3 kilograms, sometimes more, return at once to their former unhygienic homes, in their narrow lodging without sun or air, with food often exceedingly bad, and usually accompanied by that fearful poison, alcohol. Nevertheless, it is a fine and useful work. The vacation colonies succeeded in 1912 in sending to the country 13,000 children. As an act of charity it is enormous: as regards its results, it is not sufficient.

It is necessary that those children already infected change their mode of life. It is necessary to transport them to the country, where they may be under medical surveillance. But it is not possible to place them all among the peasants, because there are certain children whose lesions are glandular and in whom open tuberculosis may declare itself at any moment. For them, it is better that they should be placed in an open air school—the open air school which has arrived at more or less complete perfection in different countries.

From this standpoint I can tell that the German Red Cross took the initiative. Its method is imperfect but nevertheless gives results. In the neighborhood of Charlottenburg, which is sandy and dry, there are great pine woods. All the pretuberculous children are each morning grouped together in their districts about the electric tramways, which have been especially organized for them and are supported by the Red Cross. They are thus transported in a half hour to the forest.

Nevertheless it is not a perfect method, because these children are returned in the evening to the family quarters, where they are to breathe all night that unhealthy air. If the father or the mother is tuberculous, they will certainly contaminate their children.
ier, the

Professor Grancher had decided (and it is a s what
which would have been realized if he had n arrived
so soon taken from us) to create a sanatorium exists,
for this type of child. He wished to have esta enough
in the neighborhood of Paris schools

the same time hospitals. The chi pily for ugh their
existenc f toxins
would have had a double ratior his home ing bac-
and food, and a half one of work— the childr ren, as
said. He had elaborated a compl
is still being studied, after five yea for us a con-
pality of Paris, but its only outcome st place, those
of a hundred children to a fresh air are adopted,
war. There are always numerous ally, by their
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much greater expense which falls on rmanently
necessity of sending the children to Ber e manner
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At Lyons there is one open air school g to his
children, due to the initiative of the M he very
Herriot. They are all under the surveillanc country
cians who examine them each month. Mos
results have been obtained. service,

In regard to the possibilities for the Pari giving
dren, two opportunities are offered: the type aking
air school, only for the day, or what would have
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Despite all our efforts, the proportion of tu
losis remains considerable. Despite the care ult
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with a certain number, the malady continues its fa
course, it develops and ends in the generalized for r
chronic suppurations, or the fearful meningitis whi
is so often a cause of death in children's hospita
In the hospital with which I was connected as chi
of clinic, l'Hôpital des enfants malades, one of th
large hospitals of Paris, it causes three deaths a week.
For the Congress of Rome I made a statistical summary which showed the results among the children before we became seriously interested in the problem From these statistics one finds out of five or six children affected with tuberculosis three or more dying of tuberculous meningitis. They die, most often, toward the second year, at the time when the child is making rapid intellectual development. The proportion of deaths from tuberculous meningitis is truly dreadful; before making the summary I could not have believed it. There lies a frightful danger.

Tuberculosis, once in the body, can still be cured It is cured more easily among the well-to-do classes, in whom all the necessary precautions can be taken, the child strengthened and costly apparatus supplied. It is almost impossible among the poorer classes, among whom the parents cannot make the necessary effort to care for their children. It is often necessary, too, to wait for them from three to six months before a child may be sent to Berck or to Hendaye, the resources of those institutions being all too meager for the number of patients to be cared for.

THE PREVENTION OF TUBERCULOSIS AMONG CHILDREN

Professor Grancher, even before the idea which we are now discussing, possessed one even more feasible and productive of marvelous results, because of
its simplicity ummation. Grancher be ,
that if it was hildren's E o cure tubercul
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n the Germans were covering anatoriums, Grancher saw very not the correct formula, because h takes the sick mother or father child to its more miserable surmplishing relatively nothing in the rculosis. The much desired serum uberculosis has not been found in reful researches in thousands of

his, the idea of Grancher of preventing t be followed. In this problem of the work of Pasteur in silk culture has basis. The great services rendered by he silkworm industry in 1860 are well y were the first researches to stimulate human microbial infections. demonstrated that the silkworm disease a germ: *that this germ was deposited by* y on the leaves where later the eggs would and that there was some sort of contamithis breeding place, for the preceding genad contaminated the area, and at the moment ng, the worm issuing from the egg at once e germ. Pasteur saw clearly that the worm hereditarily infected with the disease, but was at the moment of hatching that it became ed. He then had the idea of disinfecting comly all the seed and of transplanting the eggs at e, as soon as laid, to appropriate places. The hatching in a noncontaminated place develops the disease. It was thus possible to transpose ss of hatching of the silkworm, a national , and to save it from ruin.

It was this idea which inspired Grancher. He said that, in order to prevent tuberculosis when the father r mother is tuberculous and is running the risk of contaminating the children about them, it would be necessary to separate the children from the parents— save the seed.

In this there is something which at first sight seems cruel—to separate the child from its parents. Nevertheless these unhappy parents to whom we address ourselves understand the situation very well and hemselves ask us to save their children.

The idea of Professor Grancher was to place the healthy children in healthy families where they might be adopted, which families were as good as (and I may say many times better than) their natural families. This view seems shocking at first thought, but really speak of those children of Paris whose fathers re sometimes alcoholic, the mothers too ill to care for them, and who are thus found abandoned to the gutter.

These children we transported to the chosen families, physically and morally healthy, and those who have had the futures of Apaches are regenerated and have become good French men and women.

METHODS OF THE ŒUVRE GRANCHER

In my position as secretary of the organization, I will explain as briefly as possible its methods. The first problem confronting Dr. Grancher was the method of finding healthy peasant families in the country. It was his idea to add certain men who persons the country. former students, growth of like France, it is an inter- it constructed entirely

rural community. They could tell if the people were honorable, if they enjoyed good health and were capable of bringing up children confided to their care. They could tell if the peasants were well enough placed financially, which is an indispensable point, for we do not pay a very large price for boarding the child. It is necessary that these persons taking the children do not do so in the interest of money: we do not wish to make a business of the work, we do not wish professions: we wish only those persons who will take the children as companions. It is the country physician who chooses, frequently gratuitously, the house in which we place our children.

At the beginning we especially chose families possessing other children. We have since learned to recognize that this presents certain inconveniences: there are at times jealousies, rivalries, etc. More often now we take the homes of peasants which are *so often seen, where the children are already married* and established in life, families remaining alone, a middle-aged couple, happy at having the company of a child. I know of old peasants perfectly enchanted at having a little girl with them who, for instance, can read the newspapers to them. We do not object if they are not allowed to read too diverse facts. In this way we have made most excellent choices, and many physicians are able to designate to us from their own clienteles as many as thirty families of this sort.

We always place the brothers and sisters together, in this way not suppressing the family tie. Our organization serves as a sort of guardian—an intermediary between the peasant family and the Parisian family. The latter confides the child to us with the following formula: "You have designated such and such a family in the country: I confide by your intervention my child to Mr. Blank who will care for him as his own and who will occupy himself with his instruction and religious education."

Our organization takes children from 3 to 15 years of age. Children younger than that we accept only occasionally, placing them in a nursing home but in a special way. After having had a number of children, it sometimes happens that the exhausted mother develops tuberculosis. If this occurs we take all the children over 3 and under 13, treating the younger ones, if there are any, in a different way.

The children thus placed in the peasant families pass all of their school life with them, remaining our pupils even if the parents themselves disappear.

In cases in which the parents are cured, happy results to which we have contributed by taking their children, they are returned to them at the age of 13 years. We have thus assisted the parents in the up-bringing and instruction of their children, particularly the mother, who has not been obliged to occupy herself exclusively with them and has thus had an opportunity of being more easily cured.

We take only the healthy children. If they are ill, we refuse them without pity. It would be dangerous, indeed, to install among the country peasants children who could develop tuberculosis. We do not even take suspected children, those having the signs of latent tu Those are sent to the vacation colonies or are placed in open air institutions. d with us. For them the ideal is the ol, of which I have previously spoken. are given in the brochures of the also [illegible]

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A. R. Mitc
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PHARMACO
Bastedo, New York; Vice Chairman, G. W.
Secretary, Cary Eggleston, 412 West End

We require a certificate stating that the father, mother, sister or brother is affected with tuberculosis, but that the child is healthy. Further, we ask for the birth and baptismal certificates in order to place the child in the religious surroundings desired by the parents.

The children supplied with their papers pay a visit to the central office of the organization. There they are outfitted with clothes, are operated on if necessary for adenoid vegetations in order to forestall throat infections, and then, in small groups they are conducted to their destination by the devoted women who serve as patronesses.

For the Parisian society we make use of the following regions particularly: A series of homes is at present at Lille, Toulouse, Montpellier, Dijon, etc. We have especially chosen the valley of the Boire, where life is comparatively easy, where one finds the peasants fairly well to do, and with good morals, who possess sufficient effects, fields and cattle, and who are not excessively alcoholic. The districts of Calvados and Manche would be superb if they were not ravaged by alcoholism. This factor also eliminates the use of the region of the Oise.

The children are seen daily, one may say, by the physician, who with a small motor car can make his round of country visits; he sees them on his route or passes by way of the school and requests information as to their condition from the teacher or again from the curé. Further than that, each year a certain number of us, either myself as general secretary, or others who wish to join me, make a complete tour of the colonies of our small protégés.

The results are unquestionably marvelous. Not one of our children has become tuberculous. I am wrong to say not one: since 1904 we have lost three children, who died of tuberculous meningitis in the first four weeks following their arrival in the society centers. That is to say, they were children who, despite appearances, had departed while incubating tuberculosis and died shortly after their arrival. One can be assured that, aside from these cases, our children have all been definitely saved from tuberculosis.

Aside from physical results, one can say that the moral and social results are most admirable. These children arriving in the country seem to be rejuvenated in some fashion in this healthy environment, coming as they do from the disgusting promiscuity of the purlieus of our great cities. Numbers of them who were almost little Apaches, for we take them from the most miserable surroundings, are absolutely transformed: more than that, they become robust peasants later.

When the children have reached the age of 13 years, if the parents are still living we ask them if they still desire their children. Many have so fully appreciated the service which we have rendered to them and to their children that they request us to find for the children a suitable place in the country.

The parents, at least those who are ill, are authorized to pass forty-eight hours with their children two or three times a year.

In case of the death of the father or mother, the surviving one occasionally recalls them. This is what usually happens if it is the mother who has survived the father, dead of tuberculosis.

As the danger of contamination no longer exists, we willingly return the children, frequently enough by that time beautiful children, happily fo[illegible]ugh their strengthened for the rest of their existenc[illegible] f toxins is the father who survives, since his home [illegible]ging bac- nonexistent, he is apt easily to forget the childr[illegible]ren, as they are rarely reclaimed.

In this and other ways there remain for us a considerable number of children, in the first place, those who have become orphans. These are adopted, morally and actually, sometimes financially, by their foster-parents. We knew of such a family of country people, in the Cher, a home which enjoyed no children, and who recently said to us, "We have no children; if the little one is agreeable all that we have will be his."

One sees thus how these children are permanently attached to the country. We operate in the manner defined by Mr. Meline two or three years ago at a congress at which he presided and according to his views. This congress had for its object the very grave question of the depopulation of the country districts.

The Grancher Society renders a true social service, in preventing the propagation of tuberculosis, in giving to its children a good moral education, in making good future French men and women, and, as I have said, in often bringing them back to the life of the country, so much more healthy and normal than that of the large cities.

There is also, on the other hand, an economic result of which I will speak incidentally. To cure a case of florid tuberculosis is very expensive to a society, to the Assistance publique or to a private charity. For a patient cared for in a hospital or sanatorium, three years is usually necessary, with a minimum price of 4,000 francs ($800) a year, which makes a total cost of 12,000 francs ($2,400). On the other hand, for 400 francs ($80) a year at the maximum, we can take care of a child. Thus, from the economic point of view the Grancher Society realizes the highest comprehension of the fight against tuberculosis.

GROWTH OF THE SOCIETY

Our society is developing. It counted at its beginning twenty-seven patients. Before the war it counted 810. It is now reduced to 400. I may state that many of our children have entered the army and a certain number have died for France. Speaking only of the Parisian branch, it is certainly growing, thanks to the sacrifices of private charity and thanks also to certain subscriptions which are received from the government from the General Council and from the Municipal Council.

The provincial societies count, on their side, 290 children.

But what is 800 children in Paris or 290 in the provinces in comparison to the proportion of children fatally attacked by tuberculosis whom we cannot care for? It is nothing; it is only a demonstration: an experience. It would be necessary to save each year in Paris not 800 children, but 5,000, and consequently a larger number still for the rest of France.

The American Red Cross has been kind enough to interest itself in the Œuvre Grancher.

Following a visit to two of our centers in the neighborhood of Tours and Blois made by Dr. W. P. Lucas, chief of the Children's Bureau, and Prof. Salskar M. Gunn of the Rockefeller commission, the American Red Cross allotted to the Œuvre Grancher a sum us to take new children, divided among és and the children of tuberculous soldiers. uvre Grancher has already placed a certain of these children, who are regularly reached a visiting nurse appointed by the American Red Cross.

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That allows the society to develop its work for Paris, but of course not sufficiently at the present time. The committees of assistance to the tuberculous have been organized in each French department, and the American Red Cross and the Rockefeller Commission are furnishing them with aid for the organization of the different fields of activity—in constructing sanatoriums, dispensaries, etc. There exist actually eleven chapters of the Œuvre Grancher in the principal towns of the provinces, but we wish to organize them in every department.

This system will be, with that of the protection of infancy, the best means of saving the France of the future.

We are particularly grateful, my dear American friends, for the aid which you are giving, not only on the fields of battle, but also for the safeguarding of the new generations of France in order that, working with yours, she may continue her mission for humanity, in defending the right, the justice, and the liberty of peoples and of man.

SECONDARY TUBERCULOUS PERITONITIS

ITS CAUSE AND CURE*

W. J. MAYO, M.D.
ROCHESTER, MINN.

Tuberculous peritonitis is not a primary disease, but, like septic peritonitis, is symptomatic, having its origin in some local focus of infection. The most common sites of such local foci are the fallopian tubes in women, some part of the intestinal tract in both women and men, and the lymphatic glands and channels, especially in children. Occasionally the primary focus will be found in the stomach, the spleen, the liver, the gallbladder or the genito-urinary tract. To consider tuberculous peritonitis an entity, or to treat it as such, leads to confusion, whereas if it is looked on as a secondary process, due to some primary focus, we are led to search for the primary focus and to direct treatment leading toward cure.

REMOVAL OF THE LOCAL FOCUS

In 1904, in the Address on Surgery, presented before the Mississippi Valley Medical Association, I[1] called attention to the fact that when the local lesion could be found and removed in operating for so-called tuberculous peritonitis, a cure might be expected in a much higher percentage of cases than by the performance of a simple laparotomy, with or without medication, the latter being unsatisfactory at best. At that time I was particularly interested in the relation of tuberculosis of the fallopian tubes to tuberculous peritonitis, and reported in detail some cases in which simple laparotomy with the evacuation of fluid had been carried out from three to seven times with a reaccumulation of the fluid and failure to cure, followed by prompt cure after the removal of the tuberculous tubes. Murphy[2] pointed out that in tuberculosis the fimbriated extremities of the fallopian tubes were usually open, quite the opposite from the condition that exists in gonorrheal infection of the fallopian tubes, in which they are closed. In gonorrheal infections, therefore, pus tubes are common, while in tuberculosis, tubal retention is much less common, and the material from the tuberculous process passes out from the fimbriated extremity of the tube into the abdominal cavity, causing a more or less generalized peritonitis. Such peritonitis is essentially a conservative process leading to the destruction of the noxious agents. When the source of the infection can be removed, the peritoneum returns to normal. At a subsequent laparotomy the peritoneum will be shown to be quite free from disease and without signs of past involvement, beyond adhesions in some locality that had been subjected to prolonged infection, as in the vicinity of the primary lesion. It is true that simple laparotomy sometimes cures the peritonitis when tapping would be of no avail, because when the fluid is completely removed from the peritoneal cavity, for example by operation, the fimbriated ends of the tubes, which had been mechanically separated by the fluid from the surrounding tissues, may become adherent to neighboring structures, thus closing the ends and preventing further leakage. Under such circumstances, tubal retention of the tuberculous products results, and these pus tubes may be recognized as gradually increasing masses in the pelvis. Further experience developed the fact that the tube thus closed became surrounded by a mass of adhesions, and occasionally, in the course of long months or years, a spontaneous "near" cure resulted. The tubal content became caseated and was rendered more or less innocuous with the gradual disappearance of the pelvic masses, but with permanent fixation of the pelvic organs. The ciliated epithelium of the tubes, like the ciliated epithelium of the pulmonary tract, is very susceptible to tuberculosis. Whether the tubercle bacilli reach the tubes primarily through some other focus in the abdominal cavity and then gravitate into the pelvis infecting the tubes, or whether they pass directly by way of the vagina and uterus or through the lymphatics, is a mooted question.

Tuberculosis of the endometrium is rarely found in the menstruating uterus. When tuberculosis involves the endometrium, it is usually found in children before menstruation begins or in women after the menopause. If it occurs during normal menstrual life, menstruation will have ceased, although in its place there may be a bloody discharge, the result of the tuberculous lesions.

Fourteen years of experience since the publication of these observations has confirmed them in every respect, and it may be said that in tuberculous peritonitis which is the result of tubal tuberculosis, the removal of the fallopian tubes may be expected to cure, unless other incurable tuberculous lesions coexist. It is not at all necessary in such cases to remove the ovaries or the uterus, as their involvement is only superficial, and in no way different from that shown in the peritoneal coverings of the intestines and the other viscera.

Our knowledge of tuberculous peritonitis, the result of tubal disease, is fairly adequate; but, when the local lesion is elsewhere, great difficulty may be experienced in locating and removing the primary source of the peritoneal infection. Rarely, in our experience, has the appendix alone been the cause of tuberculous peritonitis. Tuberculosis of the ileocecal coil, including the appendix, especially of the hyperplastic type, is often accompanied by tuberculous peritonitis which, as a rule, is limited to the immediate vicinity of the primary disease, and the removal of the involved bowel promptly cures. This is equally true of localized tuberculosis of the small intestine.

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* From the Mayo Clinic.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Mayo, W. J.: Surgical Tuberculosis in the Abdominal Cavity, with Special Reference to Tuberculous Peritonitis, The Journal A. M. A., April 15, *1905, pp.* 1157-1160.

[2] Murphy, J. B.: *Tuberculosis of the Female Genitalia and Peritoneum*, Chicago, 1903.

We have encountered a considerable number of cases of peritoneal tuberculosis, confined to the region above the transverse colon, in which the lesion was particularly marked in the vicinity of the gallbladder and the pyloric end of the stomach. In most of these cases the gallbladder, which had shown colecystitis, was removed; but we have not been able to determine that there were tubercle bacilli in the gallbladder or its contained secretion, nor have we found local lesions that might have been the result of focus in the liver. However, such patients, without exception, have quickly and permanently recovered. It is questionable whether such recovery might have taken place without the removal of the gallbladder.

Barker[3] estimates that 50 per cent. of cases of tuberculous peritonitis are due to bovine tuberculosis. It is interesting to note that the English Commission on Tuberculosis (1911) showed that tuberculous peritonitis was due to bovine tuberculosis in nearly 47 per cent. of the cases, and the German commission showed it to be due to this cause in 63 per cent. It is possible that bovine tuberculosis gives a more favorable prognosis than human tuberculosis.

SIMPLE LAPAROTOMY.

The possibilities of the cure of tuberculosis of the peritoneum by simple laparotomy, when the local focus cannot be discovered and removed, are limited to the ascitic forms of the disease. It may at least be said that an open operation with careful removal of all fluid, with or without medication, has therapeutic value. It would seem, however, that the surgical profession has been over enthusiastic in its praise of the simple operation. The fibroplastic types are benefited only if there are sacculations containing fluid; but operation is contraindicated when the adhesions fill the entire abdomen without collections of fluid, or if the collections consist of multiple small pockets filled with turbid tuberculous exudate containing pus. Operation in these cases with separation of adhesion is of little value, and often results in intestinal fistula. Fortunately the adhesion type of tuberculosis of the peritoneum giving rise to the swollen, hard (wooden) abdomen are most favorable for spontaneous cure.

It seems probable that tubercle bacilli alone tend to produce tuberculous peritonitis with a minimum of adhesions, and that to a considerable extent the adhesions are the result of a mixed infection; but as the pyogenic bacteria that are admitted with the tubercle bacilli are shorter lived, they disappear, leaving only the tubercle bacilli to be discovered at the time of operation. In several subacute cases of this description I was able to find not only a mixed infection but also localized pockets of pus, containing colon and other bacteria having their origin in the intestinal tract. Later, these pyogenic bacteria would have disappeared and only the tuberculous process would have been discoverable.

Koenig,[4] in 1890, was the first to call attentugh their value of simple laparotomy in the treatment of f toxins lous peritonitis, reporting 139 cases with eiging bacrecoveries. How long these recoveries lasted wen, as recorded. Shattuck,[5] in 1902, showed a medical mortality of 68 per cent. and a surgical mortality of 37.5 per cent. in ninety-eight cases of tuberculous peritonitis at the Massachusetts General Hospital. Two thirds of his patients were females. Wunderlich,[6] in 1899, collected 344 cases in which the patients were treated surgically, and 176 of whom were traced. At the end of three years only 26 per cent. of these were in good health. Bircher,[7] in 1907, collected 1,295 surgical cases, and found 69 per cent. of immediate cures; but only 31 per cent. of these patients were well after a year or more. Osler[8] noted 131 females to 60 males. Curiously enough, while all the surgical cases, and for that matter all the medical cases observed, show an excess of females over males, the postmortem findings show peritoneal tuberculosis to be more common in the male.

The English school has strongly advocated drainage following laparotomy for tuberculous peritonitis; but drainage has been almost abandoned in this country on account of the frequency with which mixed infection has followed, often with fistulas which became feculent. After laparotomy, as a rule, there is a reaccumulation of the fluid, which is said to have a higher opsonic index and therefore a higher resistance against tuberculosis than the fluid that was originally removed. The fluid reaccumulated directly from the blood has marked sterilizing properties.

It should not be forgotten that tuberculous pleurisy or tuberculous pericarditis may exist in conjunction with tuberculous peritonitis. When there is doubt as to whether or not an ascites is due to tuberculous peritonitis, the finding of fluid in one or both of the pleural cavities is strong but not positive evidence, as the same condition is found in Concato's disease. Chronic irritative peritonitis or chronic proliferative polyserositis, as described by Concato,[9] may be local or general. The spleen or the liver, or more often both, may be encapsulated, or the entire abdominal cavity may be involved with most extraordinary shortening of the mesentery of the intestine. The contracted intestinal tract may be covered with an adhesive membrane and be drawn close to the spine. Chronic ascites is usually marked. The peritoneum, in the later stages, may be a quarter of an inch or more in thickness and of a white color. In the more extensive cases, both pleural cavities are involved, and often the pericardial sac as well.

Pick's disease is undoubtedly only a syndrome, a subdivision of chronic proliferative serositis, in which the chief manifestation is cardiac crippling, due to pericardial adhesions, although Pick believes that the pleural and peritoneal involvements are results of changes brought about in the circulation by interference with cardiac action. In none of the cases of chronic proliferative peritonitis that I have seen was the diagnosis made until the abdomen d, and I am confident that in my earlier the condition was confused with tubercu- onitis. However, some observers believe that bacilli are the causative factor. It is altogether probable that chronic proliferative polyserositis is frequently, if not usually, confused with the ascitic forms of tuberculous peritonitis. Except for the temporary relief of the ascites, laparotomy is of no value in Concato's disease. It is said that the fluid aspirated may be distinguished by chemical analysis from tuberculous fluid; this has not been confirmed in our cases. As to the frequency of Concato's disease, Fagge[10] states that he saw one case of ascites from this cause to three of cirrhosis of the liver.

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[3] Barker, L. F., Editor: Monographic Medicine, New York, D. Appleton Co., 1916, **3**, 684.

[4] Koenig: Die peritoneale Tuberkulose und ihre Heilung durch den Bauchschnitt, Centralbl. f. Chir., 1890, **17**, 657-660; Verhandl. d. X. internat. med. Cong., 1890, Berlin, 1891, **3**, Part 7, pp. 31-47.

[5] Shattuck, F. C.: Prognosis and Treatment of Tubercular Peritonitis, as Based on the Experience of the Massachusetts General Hospital for the Past Ten Years, Am. Jour. Med. Sc., 1902, **124**, 1-12.

[6] Wunderlich, O.: Ueber die Misserfolge der operativen Behandlung der Bauchfelltuberculose, Arch. f. Gynäk., 1899, **59**, 216-276.

[7] Bircher, E.: Die chronische Bauchfelltuberkulose; ihre Behandlung mit Röntgenstrahlen, Aarau, Sauerländer, 1907.

[8] Osler, William: Principles and Practice of Medicine, Ed. 8, New York, D. Appleton Co., 1917, p. 180.

[9] Concato, L.: Sulla poliorromennite scrofolosa o tisi delle sierose, Gior. internaz. d. sc. med., 1881, n. s., **3**, 1037-1053.

It will be seen from this brief summary that the cases of tuberculous peritonitis, in which surgical treatment promises to be of great aid, rather naturally divide themselves into two groups: First and most favorable are those cases in which a definite anatomic portion or viscus of the peritoneal cavity is involved, such as the fallopian tubes, the ileocecal coil, and the appendix, which can be removed. Second, and less favorable, are those in which the peritoneal cavity contains a considerable quantity of fluid, occupying either the entire peritoneal cavity or a large part of it, or in which the fluid is contained in loculi composed of peritoneal adhesions, dividing the peritoneal cavity into compartments containing fluid.

ABSTRACT OF DISCUSSION

Dr. Robert T. Morris, New York: I think not quite enough is said about the follow-up treatment in cases of surgical tuberculosis. Whenever we care for surgical tuberculosis of any sort I like subsequently to send the patient to a 5,000 foot elevation in the mountains, then to the seashore, and give them the best of food. Now a very essential thing is the use of tuberculin, the old formula, used in connection with the follow-up treatment. I have had two cases of adhesive peritonitis in which the patients are now perfectly well. One was a patient of Dr. Besemer of Ithaca, supposed to be a case of abdominal tumor. I operated and believed the patient had malignant papilloma, and said that she had about six weeks to live. I forgot all about the case and a year later I met the patient, when she had gained 40 pounds and was apparently perfectly well. I realized then that she had had tuberculous peritonitis of this adhesive type. The second case was one which I operated on in St. Elizabeth's Hospital. Having in mind the Ithaca case, I removed a specimen which proved to be tuberculous, and this was confirmed by the subsequent history. We did not remove the primary focus, or find it, in this case. Under tuberculin and the influence of general, first rate follow-up treatment that patient has become perfectly strong and well.

Dr. Daniel N. Eisendrath, Chicago: I want to take up two features of Dr. Mayo's paper: First, what shall we do with tuberculous tubes? Up to about four years ago I felt as did Dr. Mayo. I then had an experience which made me wonder whether we were doing the proper thing in removing these tubes. I had a patient, a young girl of 17, unmarried, who had tuberculous tubes and a large secondary mass of tuberculous glands in the region of the sigmoid. We laparotomized her, intending to remove the tubes, but after section decided to leave them. She married later and to my surprise went through two successful pregnancies at full term. This made me rather wonder whether we had not better be a little conservative in removing tubes under those conditions. I have always been inclined to believe the other way. The second point is Dr. Mayo's experience of having very few cases of tuberculous peritonitis following tuberculous appendicitis. The opposite has been my own experience. I believe this is due to the fact that frequently the appendicitis attack and the tuberculous peritonitis symptoms are months apart; frequently the appendix is taken out at an earlier period, probably six months or a year before the patient is treated for tuberculous peritonitis, when, unfortunately, the appendix was not examined carefully. I recall several cases in which only microscopic examination showed submucous tuberculosis in the appendix. I have seen a number of cases in which the patients presented typical histories of tuberculous peritonitis and laparotomized them even when they had been appendectomized several years before. Evidently the focus had been at that time in the appendix.

Dr. Horace G. Wetherill, Denver: Our experience in Colorado would confirm the opinion just expressed by Dr. Eisendrath, that general tuberculosis not infrequently does follow what appears to be a primary focus in the appendix. I want simply, in addition to this, to substantiate what Dr. Mayo has said so impressively, that it is distinctly and definitely unwise to drain cases which have been operated on for tuberculous infection in the peritoneal cavity whatever the primary focus may have been. We have learned only within the last few years, apparently, how much resistance to infection the peritoneum has and how well it may take care of itself. If we drain these cases we are in definite danger of producing tuberculous adhesions, and furthermore, we run the very great risk of producing tuberculous fistulas in the intestine, because the intestine will ulcerate through to the drainage tube. Otherwise it would be protected by plastic exudate. In Colorado we take no risk whatever with the drainage tube.

Dr. Charles H. Mayo, Rochester, Minn.: In reference to what Dr. Morris said, it is true that operating on the dry adhesive type of peritonitis is of no advantage to the patient; but not that a bad prognosis should be given in such a case. Ultimately these patients are likely to develop tuberculosis in some other region. In writing the paper it was not the intention to say that appendiceal tuberculosis did not exist, but that it was more rare than other diseases that would cause it as a focus. It is more rare in the woman. Man makes up for the difference in that his genital tract gives him tuberculosis which does not extend into the peritoneum. The woman develops general peritonitis. Nature can deal with that if you take the fluids out. Take plenty of time and see that the fluids are out when the intestines are dropped down. Nature will then deal with the condition as in caseous glands. I am sorry that more of the large sanatoriums have not representatives here. If in such sanatoriums as Pottenger's in California, and that at Saranac Lake, where an enormous number of cases are handled, such treatment could be tried and the results checked up, it would be an advantage. Quantitative work in these days gives us real help. The mistake is sometimes made of regarding tuberculosis of the ileocecal coil as a primary tuberculous lesion of the appendix. We will often find the ileocecal coil making very little trouble. In opening the abdomen, if operation can be delayed until the primary fever is over, the cases do better than with operation at an earlier period. Patients will develop their own antibodies if you give them the opportunity. When you find the peritoneum covered with miliary deposits it is easy to differentiate between the discrete and the confluent. When the confluent form is present, there is your focus. When widely separated, the lesion is in the upper abdomen, but you cannot always find just where it is located.

Maternal Mortality.—The March number of the *Monthly Bulletin* of the department of public health and charities of Philadelphia gives a table of figures showing the comparative mortality of women in childbirth and after labor in certain foreign countries and in various cities in this country. It is shown that in 1916 Philadelphia, with a death rate of seven, or one in 143 births, had the highest rate of any city or country for which figures are available. In New York City the rate was 4.6, or one in 217; in Newark, 2.2, or one in 454; in Detroit, 3.7, or one in 270; in St. Louis, 5.2, or one in 192; in Cleveland, 5.6, or one in 180; in Boston, 6.5, or one in 153; in Baltimore, 6.8, or one in 147; in Buffalo, 3.2, or one in 312.

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[10] Fagge, C. H.: Text Book of Medicine, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1902, 2, 488.

THE SIN OF TREATING SYMPTOMS

H. S. WARD, M.D.
BIRMINGHAM, ALA.

The seven deadly sins were enumerated before the days of modern medicine or specialism. The sin of omission would then have been classed as venial; but now, omission is often deadly to our patients, and might be classed by modern moralists as unpardonable.

This paper is intended to report some groups of cases that have been improperly diagnosed by observing leading symptoms without taking the patient as a diagnostic problem and viewing him as a whole. Medicine is no longer a one man's job—it is team work. It is, indeed, rare for one to be able to diagnose an obscure case alone. Team work with its proper limitations is our hope for the best results. Diagnostic units are now essential. There is much truth in the saying that only the very poor and the very rich get proper medical attention. The poor may go to a well organized hospital, where a department chief collects all required data, proper diagnosis is made, and required treatment instituted.

The omission may be due to the lack of using one's own faculties. This fault has been hammered so long that one rarely sees the glaring errors once so common. The omission is more often the refusal to accept, or the inability to secure, outside help. I once heard of a physician who refused consultation, saying that a patient who had him needed no other physician. Such an egotist is a menace to the community. The men who refuse consultation fear for their own reputations and care very little for the welfare of their patients.

Jealousy has wrecked many a small mind. The real physician, the one who has only the good of his patient in mind, never fears roentigen-ray findings, laboratory results, dental examination, or specialists' reports. The specialist is with us to stay, and is most useful, but he must not be permitted to subsidize the whole patient to aggrandize the disease of one particular organ.

The clinician must not allow the laboratory or the specialist to make his diagnoses; if so, his days of usefulness are gone. These factors are only aids. One cannot always delay until the pathognomonic symptom appears. One who waits for the laboratory to find tubercle bacilli in the sputum before diagnosing pulmonary tuberculosis, will realize that he has waited too long to be of real value to his patient. The patient must be viewed as a whole, the laboratory and specialists' findings being subsidiary to one grand summing up. Who shall weigh these findings in the balance and be the final arbiter? The one who should be most capable is the practitioner or internist.

If in these case reports, some physician should recognize an old friend, I beg of him not to take it as a personal criticism. The intent is to point out one of those broad truths applicable to us all, and is in no sense personal or intended as petty criticism.

MISTAKES IN DIAGNOSIS

Group 1.—Many inoffensive appendixes have been operated on, many normal tubes and ovaries have been sacrificed and many useful gallbladders drained; many ptosed viscera have been stitched up or colons removed, and many healthy stomachs have had a new opening, only for some painstaking surgeon later to diagnose a diseased kidney and thus cure a hugh their ing and nervous patient. of toxins

Case 1.—Mrs. W., aged 35, had a diseased heaiving bacan invalid for many years, and was hysterical and oleen, as able. She had attacks of vomiting and pain in the ups disside of the abdomen. These occurred every few weeks and she had been treated by some of the best physicians in Birmingham without obtaining relief. She was considered a neurotic. She had gone to one of our leading medical centers, where she had been given a rest cure, with some temporary relief. After changing physicians many times, she fell into my hands. A series of roentgenograms revealed ptosed viscera. One of our best surgeons removed several feet of her colon, an operation followed by temporary relief, only to see her relapse into her old attacks again. She was then seen by many surgeons and internists, all of whom assured her that she was a neurotic and that she should "quit her foolishness." Finally she found a surgeon who had her ureters catheterized, discovered a suppurating kidney, and removed it. This took place several years ago. She is now well.

Case 2.—Mrs. D., aged 32, married, with two children, had definite deformities following a multiple neuritis, complicated by a severe attack of typhoid. At frequent intervals since the age of puberty, she had attacks of nausea and vomiting called indigestion, headaches, neurosis, etc. Finally her ureters were catheterized and she was found to have calculi in both kidneys. The stones were removed, and the operation gave much relief.

Group 2.—The Wassermann test alone will not aid in diagnosing all our indefinite and latent cases of syphilis.

Case 3.—X., a man, aged 41, who had lived a strenuous and dissipated life without any previous history of syphilis, suddenly began to have jacksonian and epileptic convulsions. The blood Wassermann reaction was negative. He was treated for epilepsy. But the irregular pupils, the slightly slurring speech, the tremor, just discernible, about the lips, and a pleocytosis in the spinal fluid definitely labeled him a victim of early general paresis.

It has long been recognized that epileptic seizures appearing in the adult are often precursors of an early general paresis. Even focal infection and a neurosis due to menopausic changes will not always be sufficient.

Case 4.—Mrs. S., aged 43, had found her health beginning to fail. Focal infection was suggested. The tonsils were removed and the teeth were gone over without improvement. The ailment was then diagnosed as a neurosis due to menopausic changes. When I first saw her, there were double choked disks and aphasia. The spinal fluid and the blood showed a negative Wassermann reaction. A diagnosis of temporosphenoidal tumor was made. At operation she was found to have multiple gliomas.

Group 3.—Prolonged rest and polypharmacy are no longer sufficient, if one is to secure the best results in definite chorea.

Case 5.—H., a schoolgirl, aged 17, had her tonsils removed several years ago. She had been rather a delicate girl. She came to me with definite chorea. The chorea without tonsils was indeed puzzling. Her teeth were irregular and she had been wearing a brace to correct dental deformity. On examination it was found that she had definite pyorrhea. Rest in bed and the curing of the pyorrhea have restored her to health.

Case 6.—L., aged 9, a schoolboy, came into my office on crutches. The right side suggested a mild hemiplegia. The case was easily diagnosed as chorea, with chronically diseased tonsils. Tonsillectomy and rest in bed cured the hemiplegia and chorea.

Case 7.—S., a schoolgirl, aged 16, had often suffered during the winter from catarrh and colds. She was found to be from classical chorea. Removal of the tonsils and soon restored her to perfect health.

Group 4.—Other things may suffice to relieve hyperthyroidism, rather than resort to the surgery of the thyroid gland.

Case 8.—Mrs. B., a housewife, aged 23, mother of two children, had had goiter for several years. When I saw her, the symptoms were tachycardia, tremors, an enlarged thyroid, von Graefe's sign, sweating, emotionalism, insomnia, a phobia of being alone, etc. The tonsils, which had given trouble for years, were removed. After two weeks in bed and a trip to the country for six weeks, she was markedly improved.

Case 9.—L., a barber, aged 20, had the ordinary symptoms of hyperthyroidism. He had suffered with tonsillitis every winter since childhood. His tonsils were removed and he was soon able to go on with his work without any further thyroid disturbance.

Group 5.—Let us beware of that old hobbyhorse we have so often ridden—a nervous breakdown from overwork. If we look closely, we shall find something else to account for the patient's condition.

Case 10.—Dr. D., aged 39, after a rather careful examination, had been sent to the seashore with his wife to recover from "overwork." His nervousness had increased and when I saw him, general paresis was easily diagnosed. He afterward died in the insane asylum.

Case 11.—B., a traveling man, aged 41, was considered overworked, notwithstanding his robust physical condition. The symptoms were irregular pupils, insomnia, depressed spirits and a ++++ Wassermann reaction. It was decided best to send him to an institution for treatment and confinement.

Group 6.—The last and largest group includes cases of oral infection, pyorrhea, and abscessed and carious teeth. Everybody is talking about oral infection and, perhaps, exaggerating its importance.

Case 12.—Mrs. C., housewife, aged 62, who had been a rheumatic for years, and was recently found to have high blood pressure, was suddenly seized with anginoid attacks. After about three weeks of waiting for death to claim her and of exhausting a large supply of amyl nitrite pearls, she was sent to a hospital and found to have abscessed teeth and diseased tonsils. These foci were removed, and she became a useful woman. Her intercostal neuralgia is now a harrowing memory to a very good doctor.

Case 13.—D., aged 45, a robust man of good habits, had severe rheumatic pains and intense, diffuse bronchitis, with asthmatic breathing. He was unable to lie down at night. On examination, he was found to have pyorrhea, with many abscessed teeth. Extraction of the teeth and treatment of the gums for a short time, followed by two weeks at the seashore, completely restored him.

Case 14.—L., aged 17, a clerk, had been troubled with a number of painful abscesses. An abscessed tooth was extracted. His general health improved and no furunculosis has since occurred.

Case 15.—O., a man, aged 66, who was in the insurance business, had a well defined arrhythmia. The heart sounds were almost inaudible, and the blood pressure was low. He experienced dyspnea on the slightest exertion, and his liver was enlarged. His spirits were markedly depressed. He was found to have five abscessed teeth, which were removed at two sittings. He has greatly improved, and the normal heart condition has been completely restored.

Case 16.—C., a man, aged 50, suffered from asthenia, from an intense depression of spirits, that was almost melancholia, from marked insomnia, and loss of appetite. He was practically bedridden. A number of severely abscessed teeth were removed, and he is making a slow but definite recovery.

Case 17.—C., a man, aged 67, had been troubled with a number of furuncles. He was found to have almost the same symptoms as the patients in the two foregoing cases. All his teeth had to be removed. He insisted on trying to attend to some business, which proceeding made his convalescence slow.

In the Hillman Hospital there are many of the adult and aged "down and out" class, who, in times past, have been healthy and useful citizens. As a rule their mouths and teeth have been grossly neglected. Their teeth are irregular, loose, carious and broken, and set in gums seething with pus. I have often asked myself the question, "Is there any connection between oral infection and being 'down and out'?"

Then comes the practical problem, What are we going to do about it? Prevention, by teaching oral hygiene, will help the future generation. But our own patients must be taken care of. Shall we deal with this pathologic condition radically or conservatively? Many deaths have been reported from too radical treatment. Apparently the best results are obtained by putting the patient to bed, clearing up the pathologic condition a little at each sitting, allowing from three to ten days between treatments, according to the amount of reaction and recuperation of the patient.

Is oral infection a passing fad? Perhaps we are reading too much into it. It is certainly easy to become too enthusiastic. To me it is one of the present problems in medicine, extending into all the specialties. We should, however, remember the plea to view the whole patient as a diagnostic problem. If we work and watch while waiting, oral infection will find its proper place in medicine.

CHRONIC SEPTICEMIC ENDOCARDITIS

WITH SPLENOMEGALY TREATMENT BY SPLENECTOMY

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In the face of a disease like cancer or sarcoma we accept our helplessness with resignation; but we chafe against our helplessness in so-called malignant endocarditis, for we feel that we should be able to master it, the disease being an infective process due to well known bacteria, which in other circumstances may be successfully combated. Dr. Libman has shown that patients suffering from this type of endocarditis may become bacteria free and yet succumb to the disease. If death were an early event, the failure of our efforts might be more readily understood; but the affection may last for months or even for one or two years, so that ample time exists for treating it, and yet nearly every case terminates fatally.

I shall not go into detail regarding the symptoms of the affection, with which the writings of Osler, Dock and Libman have made us familiar. The outstanding features are fever of long duration, which may resemble that of tuberculosis or malaria; anemia of varying intensity, sometimes so severe as to suggest one of the primary anemias; pains in the joints; petechial spots on the skin and mucous membranes; and a heart murmur. Albuminuria is common, and in later stages the signs of a true nephritis may appear. Abdominal pains, sometimes sudden in onset and suggesting embolic processes in the spleen or kidneys, are not infrequent. Cough and insomnia are often very troublesome. From the diagnostic point of view, the heart murmur is the most important thing; it may be very faint or it may be loud and distinct. I have seen cases with mitral, with aortic and with pulmonic lesions; on the whole, however, I have gotten the impression that the aortic cases are the most frequent. The affection nearly always attacks a valve previously diseased as the result either of rheumatism or of some allied condition, such as tonsillitis or chorea. It may, however, have its starting point on an intact valve, as I have observed in gonorrhea and in one case of pneumonia, in which the pulmonic valve became involved. Such cases generally run a more acute course, with higher fever, and do not present so prominently the renal features. There is a primary chronic form of endocarditis, however, which in its course and termination is indistinguishable from that in which the lesion is a secondary one on a previously diseased valve.

One other feature is important, and that is the condition of the spleen. This organ is practically always enlarged, and in some cases so much enlarged that it becomes the dominant feature to the point of completely obscuring the underlying heart affection. It is of this group of cases, those characterized by a true splenomegaly, that I wish especially to speak. The spleen may extend down to the level of the umbilicus or even lower; it is smooth, rather firm and rarely tender, though often the seat of spontaneous pain. Such a striking enlargement may readily lead to a wrong diagnosis, especially to that of splenic anemia or of Banti's disease. It is easy to see why such a diagnosis might be made. There is the prominent spleen, the profound anemia, at times a striking leukopenia; and if a murmur is found, it will often be attributed to the anemia. Petechial hemorrhages, so valuable in the diagnosis, may be entirely absent throughout the long course of the disease.

I am inclined to think that in more than one case of so-called splenic anemia or Banti's disease treated by splenectomy, the condition was in reality chronic septicemic endocarditis. The leukopenia in a disease in which one would expect leukocytosis might readily, though erroneously, tilt the diagnostic scale in favor of splenic anemia.

Watching a number of cases in the last two or three years, and finding that neither autogenous nor stock vaccines, transfusions, drugs or other measures did aught to avert death, I began to wonder whether there was not some other factor besides the heart that was of importance in the fatality of the disease. Baehr,[1] Löhlein,[2] Ophüls[3] and others have called attention to embolic processes in the kidney. While these undoubtedly play an important rôle in the course of the disease, I believe it is wise to direct attention to the possible significance of the large spleen. The spleen is a filter for bacteria. Whether it kills them or only benumbs them, leaving their final execution to the liver, is not definitely known. Bacterial filtration is not a passive process, but according to Rosenow, and to Ozaki,[4] it is dependent on vital activity of the cells, on a selective action on their part, a bacteriotropism. The filtration causes an accumulation of bacteria in the spleen which leads to hypertrophy, a sort of work hypertrophy, as William Mayo calls it. Through the multiplication of bacteria, and perhaps through their subsequent autolysis, increased quantities of toxins are thrown into the circulation. Moreover, living bacteria are often present in old infarcts of the spleen, as shown by Ophüls.[5] In these ways an infectious disease may be kept up and perpetuated, although the primary focus is no longer existent or active. An example or two will serve to illustrate this point. In syphilis the spleen at times is greatly enlarged, and in such cases antisyphilitic treatment does little or no good, probably because the spirochetes are well protected in the spleen pulp and tissues. Removal of the spleen brings about a cure, especially if it is followed by a course of antisyphilitic treatment. In chronic malaria the blood is often free from plasmodia, while the spleen shelters them in enormous numbers.

May not therefore the long continued existence of bacteria in the spleen in endocarditis be the principal reason why the so-called bacteria-free cases go on to a fatal termination? If we could get rid of the large disease-harboring focus represented by the spleen, it might be possible to deal with the bacteria present in the heart valves. Enough antibodies might be developed to destroy them; while as long as the spleen continues to pour toxins into the blood, the body, as we know only too well, can never make any headway.

There is another factor to be considered. Enlargement of the spleen is brought about chiefly by a proliferation of cells, to a lesser degree by an increased blood content. This proliferation, according to the theory of cellular toxemia which I[6] proposed several years ago, causes the pouring into the circulation of enormous quantities of metabolic products that have to be handled by the liver and other organs and tissues.

In view, therefore, of the hopelessness of our treatment of chronic septicemic endocarditis, and in view also of the value of splenectomy in other infectious diseases—as in syphilis, malaria, and in splenic anemia, if that be infectious—I believe we are warranted in removing the spleen in cases of septicemic endocarditis in which the organ is enlarged. In this connection it should be remembered that, as William Mayo[7] has pointed out, enlargement of the spleen may exist even though the organ cannot be palpated.

On the basis of these thoughts we undertook the operation in one case, and while the ultimate outcome was not all we had hoped, failure was due to an unusual complication which caused the patient's death some time after the operation.

REPORT OF CASE

I. F., a man, aged 57, a patient of Dr. H. B. Shmookler, had been failing in health for a year. In the past four months he had a more or less continued fever, associated with joint pains but without joint swellings. His spleen had been enlarging, at first gradually, of late more rapidly. A profound anemia had coincidentally developed. From time to time there had been attacks of sharp pain in the left hypochondrium. At no time had he had any hemorrhage from the nose, mouth or bowel. Twelve years before, following an injury to the head, he began to have epileptiform seizures of jacksonian character, which later gave place to attacks of petit mal. When I saw the patient, Oct. 31, 1917, I found him exceedingly pale and weak. The heart was somewhat enlarged and there was a systolic murmur at the mitral area transmitted into the axilla. This murmur I learned had existed for many years. Petechial spots were present over the legs. The most striking feature, however, was an enlarged spleen which extended to the level of the umbilicus. A blood examination revealed: hemoglobin, 45 per cent.; red cells, 2,220,000; white cells, 4,800, with 82 per cent. polymorphonuclear cells. Considering the case to be one of septicemic endocarditis with splenomegaly, I advised removal of the spleen preceded by transfusion. Two transfusions were done, the second, which was of appreciable benefit, Feb. 3, 1918. February 5, the patient was admitted to the Lankenau Hospital, where an immediate blood count revealed: hemoglobin, 40 per cent.; red blood cells, 2,020,000; white blood cells, 4,450; polymorphonuclears, 80; lymphocytes, 6; large mononuclears, 8; transitionals, 6; eosinophiles, 0.

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[1] Baehr: Am. Jour. Med. Sc., September, 1912, p. 327.

[2] Löhlein: Arb. a. d. path. Inst. zu Leipzig, 1907, No. 4.

[3] Ophüls, William: Nephritis, The Journal A. M. A., Nov. 13, 1915, p. 1719; The Etiology and Development of Nephritis, Oct. 13, 1917, p. 1223.

[4] Ozaki, Y: Jour. Med. Research, 1917, 36, 413.

[5] Ophüls, William: Nephritis, The Journal A. M. A., Nov. 13, 1915, p. 1719.

[6] Riesman, David: The Cellular Factor in Infectious Diseases, The Journal A. M. A., Feb. 20, 1915, p. 649.

[7] Mayo, W. J.: Reports from the Mayo Clinic, 1916, 8, 628.

The urine was yellow; of acid reaction; specific gravity, 1.015, and showed albumin, a faint trace; sugar, none; urea, 1 per cent.; bile, 0; indican, 0; diacetic acid, 0; acetone, 0; many granular casts; epithelial cells; white blood cells.

The phenolsulphonephthalein test resulted as follows: the first hour, 7 per cent.; second hour, 12 per cent.; third hour, 14 per cent.; total, 33 per cent.

The blood urea was 66 mg. per hundred c.c. of blood.

February 6, the spleen was removed by Dr. Deaver under ether anesthesia. It was found to be enormously enlarged and adherent to the diaphragm at the upper pole.

The spleen with blood weighed 1,570 gm.; without blood, 1,160 gm. The surface showed two scars, evidently the result of infarction. Dr. Reimann, pathologist of the Lankenau Hospital, reported on the microscopic examination: "The spleen is not the spleen of Gaucher's disease, Banti's disease, malaria, tuberculosis, syphilis, Hodgkin's disease, or the leukemias. There is endothelial hyperplasia, diffuse around the blood sinuses, just as in the ordinary acute splenic tumor, e. g., typhoid. The inference is that the patient had a long standing infection of very low virulence or a long standing toxemia."

The day following the operation the hemoglobin rose to 50 per cent. and the red cells to nearly 4,000,000 from 2,020,000. At the end of a month the hemoglobin was 55 per cent. and the red cells just under 3,000,000, and the leukocytes had risen to 6,250, with 68 per cent. polymorphonuclears instead of 80 per cent.

On the ninth day the stitches were removed, but there was no healing and the patient eviscerated himself. The bowels were reduced and the wound closed under chloroform anesthesia. No infection ensued.

After the operation the patient improved amazingly in appearance; his hands were no longer cold, and he lost the yellowish cachectic pallor which had been such a striking feature. Both Dr. Deaver and Dr. Shmookler feel that the operation justified itself by the improvement that followed.

March 9, the patient began to have trouble with his larynx and extreme difficulty in breathing. Dr. Butler, on examination, thought there was an abscess of the larynx. Before anything could be done, the man died.

COMMENT.

The man thus lived a month after the operation; and notwithstanding the fact that he had eviscerated himself and had to have a second operation, his general condition as well as the blood showed a decided improvement. While we do not know what would have happened had the laryngeal abscess not supervened, it is reasonable to suppose that the improvement would have continued.

I have reported this single case in the hope that the operation may be undertaken by others.

1715 Spruce Street.

Overweight at 50.—There is every reason why a man who is overweight at 50 should reduce until he reaches the weight he was when he was 35. According to Fisk he is a better insurance risk if after 35 he is under the weight which is the average of those of his years.—Lusk, Food in War Time.

A CLINICAL STUDY OF FIVE HUNDRED CASES OF CHOLECYSTITIS

WITH SPECIAL REFERENCE TO DIAGNOSIS

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We live in an age of conservation. Every newspaper we pick up contains articles on the conservation of food, of clothing, of fuel; in fact, we are urged and taught to conserve all the resources of this bountifully productive land, but we see and hear very little on the conservation of the nation's greatest asset, the conservation of human life.

We live in an age of preventive medicine, and although we are not yet able to prevent a great many diseases, we, as physicians and surgeons, frequently are in a position to prevent complications of diseases and through opportune intervention prevent a serious, if not fatal, outcome, thereby doing our bit in the conservation of human life.

While looking over the mortality records for the last five years, and the causes of death in our clinic at Bismarck, I was impressed with the fact that a large percentage of these deaths were preventable, provided these patients had received earlier attention. Some died without operation, while others submitted to surgery as the only possible means of recovery. I refer particularly to the acute intra-abdominal lesions, namely, appendicitis, gastric and duodenal ulcers, and cholecystitis.

We are all familiar with the importance of early diagnosis and surgical treatment of acute appendicitis and perforating gastric ulcer, but I do not think that the profession at large has been strongly enough impressed with the importance of early operations for the relief of gallbladder inflammations and their results. It is especially cholelithiasis and active cholecystitis to which I wish to call attention, not only because of the suffering they entail, but also because of the more serious consequences which have not been sufficiently emphasized and which swell our mortality rate, namely, cancer of the gallbladder or ducts, rupture of the gallbladder with septic peritonitis, empyema of the gallbladder, suppurative cholangeitis, abscess of the liver, hepatitis, pancreatitis and other less serious complications, all of which can be averted by an early diagnosis and operative treatment.

The practice of waiting for further developments, for the appearance of jaundice to verify the diagnosis, or until direct danger to life is evident, is still too general.

Realizing that many lives are thus sacrificed that might be saved, and that the voice of the internist is sometimes heeded by the general practitioner and the patient more than that of the surgeon, I thought that this report might be of help to those who are still holding back, as well as to those on whose diagnostic skill and judgment depend the welfare and the lives of a great many people. I have, therefore, reviewed the histories of the last 500 cases of inflammation of the gallbladder in which operation was performed in our clinic either by Dr. Quain or by Dr. Ramstad, and have tabulated the symptoms as they were recorded at the time these histories were taken and the patients referred for operation. According to Table 1 it will be seen that the diagnosis of gallbladder disease rests almost entirely with the anamnesis, and the patient will frequently relate the history of an attack of colic which is so definite that it seems almost stereotyped.

The reason so many cases of cholecystitis or cholelithiasis are taken, or rather mistaken, for disease of the stomach is that disease of the gallbladder produces symptoms that are referable to the stomach. These are reflex symptoms, and they are in no way related to the taking of food—a fact of which we must never be forgetful—and yet hardly a day passes by on which patients do not present themselves at our clinic with a typical gallbladder history, but with a previously made diagnosis of acute gastritis, gastralgia, gastric catarrh, dyspepsia, indigestion and other erroneous names. I have divided this series of 500 cases into two groups, namely, those in which stones were found, and those in which no stones were present, but in which the examination indicated a pathologic condition of the gallbladder. In the first group there were 340 cases and in the second 160.

TABLE 1.—SYMPTOMS IN FIVE HUNDRED CASES OF INFLAMMATION OF THE GALLBLADDER

	Cholelithiasis, 340 Cases		Cholecystitis, 160 Cases	
	No.	Per Cent.	No.	Per Cent.
Tenderness	292	86	150	94
Belching	271	79.7	107	67
Vomiting	269	79.1	76	47.5
Cramps, radiating	244	71.8	61	38.1
Dyspnea	243	71.8	63	39.4
Epigastric distress	117	34.4	72	45
Prostration	96	28.2	7	4.4
History of Jaundice	79	23.2	13	8.2
Cramps, not radiating	69	20.3	84	52.5
Bile in urine	59	17.3	3	2
Sex	M. 36, F. 304		M. 40, F. 120	
Parity	0 to 15, average 6		Average 5	
Gastric Acidity	0 to 100; average: free, 24; combined, 18.		Average: free, 35; combined, 17	
Duration of illness	1 month to 26 years		1 month to 37 years	
Time of day	Day, 2%; night, 10%; day and night, 88%		Night, 6%; day and night, 94%	

SYMPTOMS

Tenderness.—The most constant symptom in this series was tenderness over the gallbladder region, and it was present in more than 86 per cent. of the cases with stones, and more than 94 per cent. of the cases without stones. The degree of tenderness depends on the severity of the inflammation and the degree of distention of the gallbladder. The most satisfactory manner of eliciting this symptom is the following: The examiner places his left hand firmly, with the palm up, in the patient's right flank, and the tips of the fingers of his right hand below the right costal arch over the region of the gallbladder. The patient is then asked to breathe deeply. On expiration, when the abdominal muscles are relaxed, a sudden pressure upward with the right hand is made. If the gallbladder is distended a sharp sting is experienced by the patient, which manifests itself by a typical expiratory "catch" or "grunt." Pressure over an inflamed empty gallbladder also causes pain, but not of so stinging a character. During active inflammation or during an attack of colic the gallbladder is extremely tender, and there is present marked muscle spasm, the result of a local peritonitis.

Belching.—Gas often troubles during the attack and gives the sensation of bloating and upward pressure, and is relieved only by eructations. It was positive in approximately 80 per cent. of the cases with stones, and in nearly 67 per cent of the cases without stones. In gastric ulcer we frequently find belching, and it is claimed by some authorities that it is of no significance in differentiating ulcer from cholecystitis. My experience has been entirely different, as is shown by the high percentage of positive cases in our series. Of particular importance is the fact that belching in cholecystitis is independent of the taking of food; it may be most pronounced between meals, often coming on suddenly, of short duration and followed by prompt relief from the annoying bloating, distress, upward pressure, etc., whereas in ulcer it usually occurs at a specified time after meals and disappears when gastric digestion is completed.

Vomiting.—Infections of the biliary tract are frequently accompanied by antiperistalsis, bile is regurgitated into the stomach, and because of its emetic qualities there is vomiting or nausea, the vomitus nearly always consisting of bile. Of the 269 cases, in twenty-eight, or slightly more than 10 per cent, there was nausea without vomiting, while in thirty-four of the seventy-six cases without stones, or approximately 45 per cent, there was nausea without vomiting. Sometimes the vomiting will relieve the attack the same as in gastric ulcer, but often the patient keeps on vomiting until the bile ceases to flow into the stomach. I have made it a rule—and it has served me well—that whenever vomiting is present in an upper abdominal lesion, and an obstruction of the pylorus can be excluded, to look to the gallbladder as the offending organ.

Radiating Cramps.—When the gallbladder becomes overdistended from obstruction of the cystic duct or the common duct, there occurs sudden severe epigastric pain with radiation either to the right costal arch or to the left, and through to the back or the region of the shoulder blade, or to the right or left shoulder, which, after a longer or shorter terrific spell, ceases as suddenly as it appeared. It is of a sharp, lancinating character, coming on at irregular intervals, by day or by night, often bears no relation to food, and is without apparent cause. This is the typical gallstone attack, and was found present in 244 patients with stones, or in 71.8 per cent. of the first group, and in sixty-one, or 38.1 per cent., of the second group. There are many variations in the character of the pain, in its radiation and in its severity. Although no definite knowledge can be gained by it as to the location of the stones, I have often seen a cystic duct stone at operation when the pain radiated to the left costal arch.

I use the word "cramps" for these pains, because its use has often brought out a typical gallbladder history, which otherwise would have been difficult or impossible to get. This is particularly true of the German and Russian patients who present themselves with an indefinite stomach history, and seem altogether forgetful of the attacks of *Magenkrampf* or *Mutterweh* from which they suffered ten or twenty years ago, but which are promptly recalled by the use of these expressions. As a rule, the attacks of colic due to cholelithiasis are more severe, and when they cease there is usually sudden return to health; whereas in cholecystitis the attacks are less severe, but of longer duration, with a succeeding soreness which lasts sometimes several days.

Dyspnea.—Deep respiration gives pain during an attack of colic, and there is a subsequent spasm of the diaphragm which allows only a limited excursion, causing a marked shortness of breath. The pain is sharp and stabbing, and is frequently mistaken for pleurisy or pneumonia. As soon as the attack of colic is completed the dyspnea disappears, and the patient is able to breathe with little or no discomfort.

Epigastric Distress.—Many of the patients with chronic cholecystitis come for advice for stomach trouble, the reflex symptoms of digestive disturbance causing far more annoyance than the local gallbladder manifestations. A great many of our series, 117, or 34.4 per cent., of the first group, and seventy-two, or 45 per cent., of the second group, gave a history of epigastric distress, which characterized itself by its irregularity of appearance. It may vary in degree, and all foods cause distress, which is not influenced by soda or acids, but usually by belching or vomiting. As a whole, epigastric distress is so much like that of ulcer or other stomach trouble that no conclusion can be arrived at until careful questioning brings out the fact that the patient has had recurring attacks of severe pain in the pit of the stomach, accompanied by much gas and bloating, which puts us at once on the track of a correct diagnosis.

Prostration.—During an attack of gallbladder colic there are often great anxiety and free perspiration, and the patients have a feeling of impending death, and without being asked the direct question they frequently make the statement, "I thought I was going to die." This symptom is present much more frequently when there are stones than in cholecystitis without stones; but in either case when it is present it is almost pathognomonic of gallbladder obstruction. This feeling of impending death was recorded in only ninety-six, or 28.2 per cent., of our series of stone cases; but I am confident that it will be found present in a much larger percentage of cholelithiasis cases if careful inquiry is made. I never omit the question in the anamnesis in suspected gallbladder cases, and it has frequently helped me out when the diagnosis was in doubt.

History of Jaundice.—When we have radiating pains in the epigastrium followed by jaundice, our diagnosis is nearly always made for us. About 23.2 per cent. of our stone cases gave a history of jaundice following one or more of the attacks, while in the cholecystitis group only thirteen, or 8.2 per cent., gave such a history. The jaundice is nearly always due to duct obstruction, mostly of the common duct. If a patient has a colic that is followed by jaundice, the colic was caused by the moving of a solid body or by an obstruction due to adhesions. If the jaundice comes first and then the colic, it is presumably due to an infection or a neoplasm. Many patients give a history of only one attack of jaundice, although they suffered from colic many times a year for many years. The jaundice may vary from a yellowish tinge of the conjunctiva to a dark-green discoloration of the entire body.

Cramps Not Radiating.—In only 20.3 per cent. of our stone cases was there a history of epigastric cramps that were not radiating, while in 52.5 per cent. of the cholecystitis cases without stones there were cramps in the epigastrium that did not radiate. It will then be seen that nonradiating cramps in the epigastrium, when accompanied by other gallbladder symptoms, favor the diagnosis of cholecystitis rather than cholelithiasis. These cramps must not be confounded with epigastric distress; they are severe, lancinating pains, but do not radiate to the back or shoulders.

Bile in the Urine.—If we had a chance to examine the urines in all cases of gallstone colic within the first twenty-four hours after an attack, approximately 80 per cent. would react positively to bile. In our gallstone cases only 17.3 per cent. gave a positive reaction, while in only 2 per cent. of the cholecystitis cases bile was found. This small percentage is due to the fact that we see very few patients during or immediately after an attack, although in most cases they give a history of a dark brown urine immediately after the attack of colic.

Sex.—Statistics vary greatly as to the percentage of men and women suffering from cholecystitis. In our series we found thirty-six men and 304 women, or one male to nine females harboring stones. Of the second group, or that without stones, the proportion of men was much higher, namely forty males and 120 females. This would lead one to believe in the theory of bile stasis in the gallbladder due to pressure either from tight bands, apron strings or the like, rather than in that of infection, because most of our stone patients were fleshy women who were in the habit of wearing aprons with tightly drawn strings.

Parity.—Of the stone cases in the first group, seventeen women were nulliparas, and the highest number of births was fifteen, the average being six, while in the second group the average was slightly lower, namely, five. Whether or not pregnancy is an etiologic factor in gallstones has not been proved, although many patients experience their first attacks during a period of pregnancy—probably the result of a stasis due to pressure from below.

Gastric Acidity.—At a recent medical meeting I heard a discussion on the gastric acidity in gallstone disease that amused me very much. One eminent clinician found the acidity above normal, while another physician of equal renown found a low acidity. In an analysis of our cases I found the acidity varying from a hydrochloric acid deficiency to 100 per cent. The average for the first group was free hydrochloric acid 24, combined 18, or slightly below normal, while in the second group the average was free hydrochloric acid 35, combined 17, or slightly above normal. In the acute cases there was usually hyperacidity, while in the chronic there was nearly always a low acid content.

Duration of Illness.—This factor is of no particular interest from a diagnostic standpoint, yet it is interesting to note that the patient who suffered from the disease for thirty-seven years presented no stones at the operation. Whether or not the stones were passed into the bowel is a matter of speculation; yet, it seems barely possible that one should suffer attacks for that long a period without the formation of gallstones. The shortest period of suffering was one month.

Time of Day.—In the first group, 88 per cent. of the patients had attacks both day and night; 10 per cent. had only night attacks, and 2 per cent. suffered in the day time. In the second group, 94 per cent. suffered both day and night, and 6 per cent. had only night attacks.

Of the 340 cases of cholelithiasis, fourteen were discovered during the progress of some other operation; but in nearly all of these close inquiry after the operation brought out an unmistakable gallbladder history.

In studying the symptoms of our series of cases, certain conclusions were arrived at which warranted tabulation of the symptoms in groups or combinations, and I believe that a careful analysis of these combinations will be of immense help to us in arriving at a proper diagnosis of gallbladder disease. I have taken the five most prominent symptoms and have called them the "five cardinal symptoms" of cholelithiasis (Table 2). I have omitted "tenderness" and "epigastric distress" because they can be demonstrated in so many different diseases of the upper abdomen, and have therefore much less value as a diagnostic factor.

Since in this article I am taking up only the early diagnosis of cholelithiasis and cholecystitis, I have refrained from mentioning symptoms of complications and sequelae because the disease should not be allowed to progress to this point.

AIDS IN DIAGNOSIS

Regarding the roentgen ray as an aid in the diagnosis of gallstones, I will say that our experience has not been very encouraging. All our gastro-enterologic patients are sent to the roentgen-ray laboratory for examination, but the results, so far as the diagnosis is concerned, are rather discouraging. Such men as Case, Pfahler and George assert that they are able to demonstrate gallstones with the roentgen ray in from 50 to 85 per cent. of their patients. If these reports are correct, their work must certainly be commended. Their success is due to the fact that a great many plates are made which vary in density, one from the other, by variation in the exposures and the employment of a different intensifying screen for each plate. This, of course, entails a large expense, as well as a great deal of time, and we have consequently discontinued the search for gallstones by this method in our clinic. When the patients give a definite history of cholelithiasis, even though the roentgen-ray findings are negative, they are referred for operation because negative roentgen-ray findings do not exclude gallstones.

TABLE 2.—CARDINAL SYMPTOMS OF CHOLELITHIASIS

Groups of Symptoms*	Cholelithiasis		Cholecystitis	
	No.	Per Cent.	No.	Per Cent.
1 and 2	202	59	34	21.2
1, 2 and 3	189	55.6	29	18.1
1, 2, 3 and 4	173	50.9	22	13.8
1, 2, 3, 4 and 5	82	24.1	7	4.5
1, 2 and 4	172	50.6	26	16.2
1, 2, 4 and 5	82	24.1	9	5.6
1, 2 and 5	82	24.1	9	5.6

* In this column, the numbers indicate: 1, radiating pains; 2, vomiting; 3, belching; 4, dyspnea; 5, prostration.

The duodenal tube of Einhorn, which he says will often help out in the diagnosis of cholecystitis, I have used in approximately 100 cases with very uncertain results, and it has helped me to make a diagnosis in a very small percentage of our patients. I have found infected bile and mucus in an apparently normal gallbladder, and on the other hand I have recovered sterile bile, "golden yellow," etc., in patients who at operation showed gallstones.

CONCLUSIONS

From a consideration of all of the foregoing facts, it is logical to assume, in order to get the most successful results, that early surgical treatment is indicated in gallbladder disease, and that in order to be able to operate early, an early diagnosis is essential. From a study of this series of cases with reference to the more modern roentgen-ray and laboratory aids in diagnosis, I have drawn the conclusion that the older methods of diagnosis are still the ones on which we must rely. A complete history of the patient's complaint, elicited with the most painstaking efforts, particular attention being paid to the previous personal history, and intelligent use of the eyes, ears and fingers being practiced, together with the keen judgment of interpreting the facts, is still the paramount method in diagnosis. In 90 per cent. of all cases of cholecystitis and cholelithiasis a correct diagnosis can be made from the history alone, and in more than 95 per cent. of these cases the diagnosis of gallstones is an established fact when the "five cardinal symptoms" are present.

THE CIRCULATION OF ARSENIC IN THE CEREBROSPINAL FLUID *

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The infrequency with which arsenic has been found *in the cerebrospinal fluid, following the intravenous* injection of arsphenamin, forces the conclusion that this dye does not as a rule pass from the blood into the cerebrospinal spaces. Barbat[1] believes that the transition is aided by drainage of the lumbar cistern shortly after the injection. By this technic, he was able at the end of twenty-four hours to demonstrate 0.25 part of arsenic per million in twenty-three fluids of twenty-six examined. His deduction, however, is vitiated by the fact that, as early as twenty minutes after the intravenous injection, and unaided by the auxiliary puncture, 42 per cent. of the fluids examined showed 0.20 part of arsenic per million, which is practically as much as was found in twenty-four hours.

The results reported in Table 1 are based on an examination of 123 cerebrospinal fluids collected from random neurosyphilitic patients, at arbitrary intervals following the intravenous injection of from 0.3 to 0.6 gm. of arsphenamin. The analytic method used is a refinement of the Marsh technic and permits the quantitative recognition of a micromilligram of arsenous oxid, as a characteristic mirror. The attempt was made to exclude possible sources of contamination in the collection of the fluids. Controls were run with the fluids of patients, not under active treatment, and each determination was preceded by one or more blanks.

TABLE 1.—RESULTS OF EXAMINATION OF SPINAL FLUID

Interval After Injection	Samples Analyzed	Positive	Negative	Aver. Mg. Arsenous Oxid in 1 C.c.
5 min.	2	0	2	0.00
20 min.	1	0	1	0.00
30 min.	6	1	5	0.10
45 min.	3	0	3	0.00
1 hr.	29	19	10	0.18
1½ hr.	23	4	19	0.18
2 hr.	35	15	20	0.17
3 hr.	7	0	7	0.00
5 hr.	2	0	2	0.00
6 hr.	3	0	3	0.00
7 hr.	4	0	4	0.00
23 hr.	8	0	8	0.00

It is thus seen that of 123 fluids, the arsenic contents of thirty-nine became appreciable within one or two hours. Whether the fluids found negative were so because their arsenic contents at the time of collection had not reached the limit of delicacy of the analytic method or because they had already depreciated therefrom cannot be stated. Also, because of the few samples collected at intervals beyond two hours, it cannot be concluded from these data that no arsphenamin passes into the cerebrospinal fluid after the second hour or that it does not remain there in appreciable amounts for periods longer than one hour.

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* From the Psychopathic Department, Boston State Hospital.

* Because of lack of space, this article is abbreviated by omission of a table of findings. The complete article will appear in the reprints, a copy of which may be obtained from the authors.

1. Barbat, J. H.: Permeability of the Meninges to Arsenic in Paresis and Tabes, The Journal A. M. A., Jan. 19, 1918, p. 147.

The recent work of McClendon[2] suggests that the cerebrospinal fluid is an ultrafiltrate of the blood. Its arsphenamin concentration at the place it is formed must then progressively decrease with that of the blood. Adler and Wetmore,[3] using the same analytic method as did the present authors, found that at the end of one hour, following the intravenous injection of 0.6 gm., 80 per cent., of the drug had disappeared from the blood stream. In three hours 98 per cent. had gone, and the concentration of arsenous oxid was only from 0.25 to 0.50 mg. per cubic centimeter. It seems probable, therefore, that the arsphenamin concentration of the cerebrospinal fluid attains its maximum during the first hour. This probability is strengthened by consideration of what happens when arsphenamin is intrathecally introduced by the Swift-Ellis technic. Twelve c.c. of blood serum drawn one hour after the intravenous injection of arsphenamin, and fortified by the addition of 0.3 mg., represents about 150 mmg. of arsenous oxid. Two hours after its introduction, the fluids of three patients examined showed less than 0.05 mg. of arsenous oxid per cubic centimeter. By the latter technic, therefore, a maximal concentration of 1.2 mg. of arsenous oxid per cubic centimeter of cerebrospinal fluid may be obtained and maintained for a period certainly not over two hours.

It is now fairly definitely established[4] that the cerebrospinal fluid filters through the arachnoid villi into the greater sinuses, and the absorption from the cranial subarachnoid space is held to be much more rapid and greater in amount than from the spinal portion. Also, there is said to be an accessory drainage of the fluid by way of the perineural lymphatics. Cushing and Weed[4] report the excretion within two hours of from 19 to 25 per cent. of the phenolsulphonephthalein placed in the lumbar subarachnoid space of cats. Mehrtens and West[5] state that the same substance under similar conditions appears in the urine of normal human subjects in less than ten minutes. In neurosyphilis the period is lengthened as much as seventy minutes. How long the excretion can be demonstrated or what becomes of the major part of the substance was not determined.

It might be questioned whether the minute amounts of arsphenamin that find their way into the cerebrospinal fluid have any spirillicidal value. Knowing what we do about its rapid excretion, it is probable that 0.6 gm. of the dye given intravenously cannot, when dispersed through the tissue juices of a 70 kg. (154-pound) man, represent a higher concentration of arsenous oxid per cubic centimeter than is found in the cerebrospinal fluid; and its efficacy in systemic syphilis has never been questioned. Its failure to attain a spirillicidal concentration may be manifested by such phenomena as neurorecurrences, the Herxheimer and other reactions, corresponding to the biologic law that small quantities of a poison excite, large ones kill, the micro-organism.

The best histologic and physiologic evidence[4] represents the cerebrospinal fluid as "not only the secretion of the choroid plexus, but the fluid waste products of nerve-cell activity as well, poured into the subarachnoid spaces by way of the perivascular channels." Spina[6] has shown that the amounts yielded by the lymph spaces may be considerable. Hence it cannot be said that any amount of arsphenamin placed in the cisterns is therapeutically the equivalent of the minute amounts excreted into the cerebrospinal spaces from the capillary bed. The rate of filtration of the fluid through the arachnoid villi is a function of the pressure difference between the cerebrospinal fluid and the venous blood. To reduce the pressure of the former by withdrawal of a maximal amount of fluid at lumbar puncture, as practiced by Barbat,[1] may indeed have the effect of suspending the outflow for a certain period and thus conserve the arsphenamin concentration of the fluid. The therapeutic advantage to be so gained is problematic, since it is in the perivascular and perineural spaces that occur the chief inflammatory changes characteristic of neurosyphilis, and it is doubtful whether the various cisterns are in direct communication with the former.

It has been urged in favor of intrathecal therapy that the serum introduces the antitoxin, which, after all, constitutes the effective curative agent. Sherrington[7] has shown that following intravenous injections of antitetanic serum into monkeys, the cerebrospinal fluid acquires antitoxic properties. In effecting cures of acute tetanus, the intrathecal administration of the antitoxic serum was shown to be more efficient than the intravenous. Golla[8] denies that the relation holds for man, and cites Irons, who treated sixteen unselected acute cases by the lumbar method with a mortality of from 81 to 83 per cent., and eleven similar cases by the intravenous route, with a mortality of 72 per cent. In a chronic granulomatous disease like syphilis, conditions are much different. Taking the Wassermann reaction as an index, the antitoxic molecule is frequently, in the later stages of neurosyphilis, to be found in the cerebrospinal fluid, while absent in the blood serum. The autochthonous formation of antitoxin, indeed, becomes a necessity, if we are to regard it as the reaction of the host against the constituent contents of the invading organism, e. g., its toxin; and in neurosyphilis the perivascular spaces are the chief seats of the spirochetosis, and hence also the chief seat of antitoxin formation. There is strong indirect evidence that the antitoxin molecule represents nothing more than the molecule of some everyday constituent of the blood (and to a lesser extent of the cerebrospinal fluid), that has acquired an exalted adsorptive capacity. The Wassermann reaction would, then, represent a physical competition between the adsorptive capacities of two molecules for complement, resembling the competition between two acids of different avidity for base. As will be brought out by one of us (Rieger) in a separate paper, this increase in adsorptive capacity of the normal molecule, x, sufficient to deviate complement from the hemolytic molecule, y, of rabbit's serum, may often be brought about in a simple way both in vitro and in vivo. The injection of arsphenamin, per se, can often accomplish this, so that after repeated injections, a previously negative blood serum becomes positive, without the mediation of spirochetes.

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[2] McClendon, J. F.: The Formation and Composition of the Cerebrospinal Fluid, The Journal A. M. A., April 6, 1918, p. 977.

[3] Adler, H. M., and Wetmore, A. T.: Boston Med. and Surg. Jour., 1914, **171**, 900.

[4] Cushing, Harvey, and Weed, L. H.: Jour. Med. Research, 1914, **31**, 1.

[5] Mehrtens, H. G., and West, H. F.: The Absorption of Phenolsulphonephthalein from the Subarachnoid Space in Diseases of the Central Nervous System, Arch. Int. Med., October, 1917, p. 575.

[6] Spina, A.: Arch. f. d. ges. Physiol., 1900, **80**, 370.

[7] Sherrington, C. S.: Lancet, London, 1917, **2**, 964.

[8] Golla, F.: Lancet, London, 1917, **2**, 966.

The intensive treatment of neurosyphilis in all stages, by the intravenous injection of arsphenamin, has, in the hands of one of us (Solomon) thus far given the most satisfactory results. The latter will be presented separately. The cases in Table 2 were taken at random and simply represent those on whose fluids two or more arsenic determinations had been made. It will be noted that the fluids in general show progressively smaller amounts of arsenic for the same time interval, with successive injections. This increased rapidity of elimination corresponds with the increased tolerance for arsphenamin shown by most patients. Adler and Wetmore, working with blood, similarly report that "increased tolerance to salvarsan seems to run parallel to increased rapidity of excretion. This circumstance may form the basis for the belief that the spirilla become "arsenic fast" under intensive treatment. It will also be seen that those patients consistently showing the larger amounts of arsenic in their fluids made the more rapid progress, as judged from the serologic findings.

What, then, is emphasized by the foregoing is the necessity of maintining a maximal concentration of arsphenamin in the blood for longer periods than has heretofore been the practice, so that increasingly greater amounts will pass into the perivascular spaces. The pleocytosis, increase in protein and in the positivity of the Wassermann reaction in the midst of apparently intensive treatment, can only mean that the arsphenamin has failed to reach the seat of the spirochetosis in lethal concentration, and has stimulated rather than checked the process. It is hoped to meet the condition set forth, by successive intravenous injections at one or two hour intervals of small doses, perhaps supported by multiple intramuscular injections.

SUMMARY.

1. Of 123 cerebrospinal fluids collected at intervals ranging from five minutes to twenty-three hours after intravenous injection of from 0.3 to 0.6 gm. of arsphenamin, thirty-eight showed appreciable amounts of arsenic.

2. The largest amount found was 0.6 mg. of arsenous oxid in 1.0 c.c. The average amount was 0.18 mg. per cubic centimeter. The shortest interval at which arsenic was found was thirty minutes; the longest two hours.

3. With successive injections, the fluids in general show progressively smaller amounts of arsenic for the same time interval.

4. In general, those patients consistently showing the larger amounts of arsenic in their fluids made the more rapid improvement.

5. It is suggested that intravenous injections of divided doses at one or two hour intervals would prove more effective in maintaining a high concentration of arsphenamin in the blood for longer periods, and thus possibly allow increasingly greater amounts to pass into the perivascular spaces.

To Detect Simulation of Unilateral Blindness.—A. Trantas of Athens has found instructive the vertical black band which is seen with binocular vision when two opaque screens are moved toward each other until they cover both pupils. On each side of the opaque line there is a luminous line owing to the physiologic diplopia.

Military Medicine and Surgery

THE NATURE OF NERVOUSNESS IN SOLDIERS *

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For eighteen months the term "shell shock" has been employed in medical literature and, colloquially also, in the British Army to cover all cases of nervous instability occurring in the course of war.

Under this heading have been massed cases of amnesia, anergic stupor, sleeplessness, nightmare, mutism, functional blindness, tremors, palsies, and further, anxiety neuroses, occurring not only under fighting strain but also in individuals who, failing in self confidence, suffer doubts and apprehensions while still waiting for transport overseas. Further, the term became commonly used in newspaper journalism, whence it passed into common speech, always associated with a train of thought in the mind of the speaker, at once fearful and mysterious.

The general acceptance of this term and the apparent recognition by both medical officers and the public of a concrete, and above all quite novel, condition induced by experiences of unimaginable horror—the moving accidents of flood and field—had the obvious result of satisfying most patients as to the propriety of his ailment; there was inevitably induced in him an easy rationalization of his illness, an easy self-justification in the very label tied to his tunic in the field ambulance, which, in all but the most redoubtable spirits, facilitated acceptance of his fate and to some extent inhibited effort on his own part toward his own cure.

Let me not be misunderstood: A conscious assumption of symptoms by soldiers in my experience—and in this I am completely supported by all other medical officers—is exceedingly rare; it is not rare for a man to go sick for a few hours to obtain a temporary alleviation of his lot, but very seldom does one meet a man malingering with a view to discharge from the service.

The conditions under which the present war is being fought are the rudest and largest experiment in biologic adaptation to which the human race has been exposed. Before 1914, it seemed to most of us that civilization with its drains, and its banks, its social amenities by which to prevent friction of the emotions, and its policemen and law courts to stop even the suggestion of physical clash, had stifled in us any possibility of living in an environment of danger and destruction, of dirt and foul odors. In the vast majority, the power of the human animal to exist in quite novel and abominable surroundings has been amply vindicated; but in a certain number the adaptation has been less complete, and be it noticed these people have been most often those who found even the normal life of peace time a hard and tempestuous affair.

Much has been written—notably by Mott and certain French observers, together with the strong support of Oppenheim in Berlin—on the theory that the neuroses of war are the result of direct aerial concussion produced by the explosions of heavy shells.

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* Read before the American Neurological Association, May 10, 1918.

Brains have been sectioned belonging to soldiers alleged to have been killed by "commotio cerebri" resulting from such concussion, and petechial hemorrhages have been demonstrated in such brains in the medulla, midbrain and basal ganglions. One may submit here the great difficulty of obtaining accurate details as to the circumstances of death on the field. It is not often easy to learn whether or not the man killed was buried and asphyxiated though not outwardly wounded, and one should also bear in mind the power of a heavy shell explosion to deoxygenate the air in its vicinity, before coming over-rapidly to the conclusion that not only the obvious factors of concussion and compression—even to the extent of 10 tons to the square yard—are the sole destroying agents involved in the question.

Almost never are generalized psychoneuroses seen in soldiers suffering also from physical wounds.

It is not conceivable that of two men exposed in equal proximity to a heavy shell burst, he who has no injury can have sustained a greater concussion than he who, for example, has also suffered a transverse lesion of the spinal cord; yet I have never seen any sign of nervous instability—not to mention stupor, amnesia, functional abolition of the special senses or tic—in any individual at the same time dangerously wounded.

In his Chadwick lecture, Mott, speaking of the importance of the personal factor in determining the production of a neurosis, contrasts the case of a commercial traveler (a drummer) of nervous make-up, who after three days in the trenches was returned to the base with tachycardia and tremor, and who six months later had developed an almost complete functional paraplegia, with the calm and well poised attitude of another, an Australian soldier, suffering a spinal paraplegia, the result of a cord lesion inflicted by the explosion of an 8-inch shell 2 feet behind his dugout. Should we accept this comparison thoughtlessly, we should miss what I believe to be one of the most important considerations in all this momentous matter. The comparison is false in that it compares two essentially unlike situations and leads us to the superficial and quite trite conclusion that a flabby, nervous fellow stands strain badly while a robust individual stands strain well.

Such a conclusion is, of course, true as far as it goes; but my experience makes me believe that, had the little commercial traveler been shot in the spine, his emotional apparatus would have remained under control, and had the Australian not been wounded in his narrow escape from destruction, he might very well have come down the line with a mutism, generalized tremor, or some such expression of nervous breakdown.

MORALE

The emotions of fear and pain constitute together our machinery of self preservation; in most of us swathed in the cotton bandages of our civilized lives but little call is made on them. Constant exposure to imminent destruction in war produces, however, a tautness of the nervous system, a strain due to powerful excitement and, I would submit, to the organic stress induced by the mobilization of biologic instincts heretofore dormant. These instincts of self preservation do not always, and perhaps not often, become conscious realizations. I mean that men, though in great danger, quite honestly may not feel afraid; their nervous systems may be said to be frightened, but their awareness knows no fear.

This submersion of such a powerful emotive force below the threshold of consciousness is due partly, perhaps, to the person's knowledge of the debilitating effects on his energies of the entrance of fear into his conscious life, but much more, one feels sure, to the inhibitory influence of his morale. Now what is this thing we call morale? Is it not the expression in each soldier of his herd instinct, of his willingness to sacrifice himself for the benefit of his kind, and for the ideals held in common by his countrymen and himself? It is a loyalty to his mates, to his officers, to his regiment, to his nation, and, in the last instance, to the ideals of life for which his nation stands, and it is measured by his conscious willingness to suffer, his capacity for sacrifice in the common good. It is a quality born of the tribe, a product of gregariousness and so held socially in good repute. It is constantly expressed in thought; it is a real component of the soldier's conscious intellectual life. The shrinking from loss and the fear of death on the other hand are but rarely scrutinized in their realities; they are antisocial in trend and so are cast down, by good citizens, into the limbo of subconsciousness.

Perhaps I seem to you to have been wandering from my subject by these considerations; but for some months past I have been trying to discover something of the dynamic influences in our men, and I feel that a clue to the genesis of the neuroses is to be found in the antagonism on the one hand of the conscious emotions of loyalty and morale with their concomitant urge to self-sacrifice, and, on the other hand, the more or less satisfactorily repressed instincts for the conservation of individual life.

The British soldier is not given overmuch to self analysis and investigation of his emotional processes; but questionings carried out as tactfully as possible have elicited in innumerable instances the information that being wounded, subsequent to or during heavy shell fire, is followed by a period of mental rest. And it would be strange were it otherwise. Such a man experiences a sense of an honorable relaxation of effort; he is, for the moment, quit of his obligation to others, and freed from his fear of death. Further, his fate, for the moment, is decided, and, despite his pain, he feels himself more fortunate than many of his fellows whom many times he has seen horribly destroyed. He waits for the stretcher bearers to take him, and in most men there is a conscious hope of a time of rest and home coming.

In such experiences, there are satisfied at once the man's biological instinct for self preservation and his social instinct of loyalty to his comrades and to that ideal of conduct which has been his buttress in times of agony and stress.

The converse situation, in which a soldier suffers the stupefaction and profound bewilderment consequent on exposure to heavy shell bursts without being wounded, is one in which the obligation to persevere still remains with him, together with a prospect of indefinite repetitions of like abominations, culminating, as after a time becomes certain, in horrible mutilation or death. Under such circumstances, the conscious morale and idealism of the man—qualities, as has been suggested, of later growth than other instinctive processes—become drowned with the rising tide of his desire for life. The longing for safety, usually overborne by his conscious will, becomes overwhelmingly insistent, and is expressed by the entire organism being given over to the phenomena of fear. The individual becomes, in mind and body, an automaton impelled by one instinct and one emotion; the mind, dazed and numbed, ceases to record impressions and is later found to be for that period amnesic. "Dumb and palsied by fright" are only popular expressions of the loss of special senses and the generalized tremors which ensue. The defensive reflexes, the dodging movements of the head, the sheltering movements of the arms and the crouching movements of the body maintained for hours and days, and, under improper influences, for weeks after the lapse of the exciting physical cause, are an indication of the continued emotional tyranny under which he labors.

In different individuals this conquering of the nobler altruistic part of the man by the lower and more selfish instincts takes place in different ways. It may and most often does occur as the result of profound fright, as has been just described, or, after a long period of mental conflict and strain, there may come a situation carrying with it complexes of such emotional strength as to render almost helpless the will power to endure. Such a case was that of an officer of my acquaintance who, having borne the racking experiences of the landing and trench fighting at Gallipoli, one day, jumping to what he took for solid ground, found himself—as he put it with a gesture of infinite disgust—squelching thigh-deep in decomposed Turkish dead. For weeks this experience recurred to his consciousness both by night in dreams and by day in dreaded interruptions to his normal train of thought, rendering him for that period incapable of duty, a prey to the paralyzing influences of both repulsion and fear.

In the beginning of this paper I said that I had not seen generalized psychoneuroses coexist with somatic injury. Such, you may say, is not the opinion of all observers; but one must point out that such observers are speaking of patients seen after transfer to England who on and near the field exhibited no evidences of nervous unrest. In other words, the neurotic symptoms in such cases developed after the elapse of an interval of days or weeks from the date of injury, which proves conclusively the psychogenetic character of these symptoms and also, I fear, the uncomfortable fact that unwise suggestion from medical officers can do much to evolve and perpetuate somatic symptoms of psychic origin.

Further, the subject is confused by inadequate classification. I have used the term "generalized psychoneurosis" to include those patients whose inability "to carry on" is the result of their mental and emotional conflicts having been decided against their higher selves, whose morale has given way before the aggrandizement of their emotions of self-preservation; these are the tremblers, the amnesic, the disoriented, those with night and day dream deliria, the stuporous. The anxiety neuroses are a milder type of the same great category, are most often developed in officers, and result from prolonged strain and mental conflict rather than from single external catastrophe.

Associated with the foregoing symptoms, or more often occurring independently, are various losses or perversions of localized function, usually classed as hysterical stigmata. These may persist after the patient has superficially resumed normal emotional control. On the whole, however, mutism, deafness, functional monoplegia, paraplegia and functional spasms of the limbs are the result of localized suggestion rather than of generalized overwhelming of all the mental and emotional qualities, producing automatism and the temporary replacement of volitional by instinctive life.

By "localized suggestion" I mean some circumstances calculated to produce in a mind already apprehensive and strained a more or less fixed idea of localized injury.

ILLUSTRATIVE CASES

Case 1.—A motor truck driver, an Australian of fine character and physique, in the autum of 1917 was worn out by constant night work in the front areas during which time his feet were almost always numbed with cold. He contracted so-called trench fever and was sent to the base. When in bed, he found that he had developed an acute dorsiflexion of the right foot and toes: this condition persisted through sleep and constituted a deformity of quite alarming appearance. Consultations were held in the case, and various opinions as to the character of the condition were expressed in the man's hearing. No conclusion was reached, and for some months electricity and massage were empirically given without modifying the position of the foot.

An attitude of complete confidence on the part of the medical officer in his diagnosis and in his ability to cure the condition, followed by strong faradism to the calf muscles and to the sole of the foot, and then by rapid reeducation in walking later abolished the spasm in two sittings. The purely mental nature of the ailment was explained to the patient; he was told how, when one wished to move, for instance, one's arm, it was necessary, first of all, to will to move the arm, how that act of will caused energy to come from certain brain cells, which energy went down certain nerves to the arm, which then was put into motion. He saw quickly enough how an injury in either the battery, i e., the brain, or the wire, i. e., the nerve tracts, could prevent movement taking place: whence, he came himself to the conclusion that in order to initiate the progress, it was also necessary to throw in the switch, i. e., to will to move.

He was shown that by his defect of will power he had become for a time no longer master in his own house. It was made very clear to him, without, of course, crude words, that the medical officer knew he was not malingering, but appreciated and sympathized with his condition of fatigue which antedated the outset of the spasm. On the other hand, reference was made to the prolonged period of rest which had been his; our need of fit and capable men like himself was touched on, and there was brought to his mind the price daily being paid by our comrades for our security. In this way his morale was stimulated and, with gratitude for his recovery, he applied for an immediate return to the line.

Case 2.—Another case of paralysis due to local suggestion is that of a young man wounded by a shell fragment on the inner side of the left upper arm in May, 1915. The wound was slow in healing, and the arm was held by apparatus in the horizontal position for eight weeks to permit of irrigation and dressing. The wound healed with some adhesions round the ulnar nerve, causing a partial ulnar palsy and minor secondary adhesions in the shoulder joint through immobilization. Since then, till a week ago, he had a complete flaccid paralysis of the entire left upper extremity from the trapezius down to and including the intrinsic muscles of the hand. He had been in a number of hospitals. More than eighteen months ago he was discharged from the army and, with satisfaction to himself, finally pensioned. He was seen by me because he returned of his own accord to a London hospital, to which I was temporarily posted, to ask that the arm should be amputated at the shoulder as it grievously interfered with his activities. No electrical assistance was invoked in this case, owing to the hypersensitiveness of the ulnar nerve through injury; but two conversations of explanation, persuasion and tactful reeducation—each of which, however, lasted for some two hours—restored complete range of movement to the arm and hand, as far as was permitted by the organic disability.

It does not seem advisable to burden a short communication of this kind with many case reports. That has been done most fully by other observers. Indeed, the perversions and abrogations of function due, as has been said, to localized suggestion do not differ essentially from those seen in all neurologic hospitals of civil life. Naturally, the suggestions producing these conditions are of the most varied character—the two patients just described are cases in point—and identical disabilities may occur through a minor injury from being struck by flying earth or as a result of a more serious injury from the diagnostic or verbal indiscretions of a medical officer.

Almost all injuries of the extremities, in my experience, are accompanied, for a short period at least, by a natural "defense immobilization" of the limb quite apart from any organic nerve injury. This is a natural reaction from pain in tired persons. A flesh wound of the upper arm, for instance, easily produces in such men the impression of inability to move the wrist and hand. And any doubts expressed by a physician as to whether or not, for example, a brachial plexus injury might not possibly account for the condition of the hand, sow the seeds of a fixed idea, which later may assume a very sturdy growth.

PSYCHOLOGIC CHARACTER OF THE PROBLEM

This bring us to the vital factor underlying the successful treatment of all somatic expressions of psychic unrest. In a word, it is accurate technical knowledge. The power to make a careful physical examination, to weigh evidence with precision and thereby to attain correct diagnosis is the only power that will give the medical officer sufficient self-confidence to be able to communicate healing to his patient.

Time and again has one seen a half doubt in diagnosis prevent a coming together of the minds of physician and patient: if the medical officer is not entirely certain of the nature of the condition under review, his ability to cure it will be inhibited by a suspicion of the existence either of an organic nerve lesion, on the one hand, or of a conscious malingering, on the other.

In short, functional motor and sensory palsies, and functional perversions of the special senses, are created by suggestion directed toward the affected faculty or member, and are susceptible of cure by like means and only by like means. To differentiate them easily and rapidly from similarly appearing organic conditions is the first and most important step in their treatment, and one which, having been taken with firmness and accuracy, will confer on the medical officer the self-confidence and authority to exorcise the system of false ideas that has been the immediate cause of the condition.

I say "immediate cause," for in these cases due to localized suggestion there is undoubted evidence of the presence and effects of the same mental conflict, the strain of which produces in other men states of anxiety or other generalized pscychoneurosis still more incapacitating for military duty.

We are indebted to Freud and his school for our realization that neurotic symptoms may be produced by the antagonism of mutually incompatible emotional trends. The tremendous mass of material made available by war demonstrates the general rightness of this principle, but still more definitely proves the peculiar wrongness of the details with which the psychanalysts have applied it, and entirely invalidates their deduction—elaborated as a pontifical dogma—that the sexual instinct in, albeit, various disguises, is the only dynamic force possibly concerned. Further, as has been pointed out by Trotter with regard to the neuroses with which we are familiar in times of peace, the nature of the repressive force has never been properly grasped by them, in its true character of gregariousness and group loyalty, an instinct of which each one of us becomes aware through what he calls his conscience and his sense of duty, the claims of which grow more overwhelmingly insistent under the whip of war than under the quiet influences of gentler times.[1]

Soldiers since the beginning of armies have been clear eyed in this knowledge. They have not, of course, dealt in the turgid phrases of our schools, but they have felt surely the binding qualities of the herd, and have seen in them the only emotive force fit to overcome in their men their fear of death. They too have known that the cement of the herd is the suggestibility of man—and their instrument of suggestion is called discipline.

So in this matter the medical officer has an onerous and difficult task. He acts both for the state and for the soldier and, to deal fairly with both clients, it is vital that he should appreciate the truly psychologic character of the problem with which he has to wrestle. Only by so doing can he free his patient of his symptoms and, what is still more important, protect the armies from the contagion of suggestion so apt to sweep through such closely coordinated communities, each individual of which is exposed to identical causative conditions.

INAPTNESS OF THE TERM "SHELL SHOCK"

The essential feature of these ailments having been grasped, they must be classified and christened. In the beginning of this paper it was pointed out how the term "shell shock," founded on false premises, not only served to suggest an incorrect etiology, but also, by its pitiful and romantic sound, tended to perpetuate symptoms and to excite no determination in the mind of the sufferer to recover his control, or, in the fighting man, still to endure. So far is it from making an appeal to conscience or to discipline that it stifles both, and stultifies effort toward cure.

The name is a mistake: we must be rid of it. Let us have instead a true term which will be neither a compromise nor a technicality, unintelligible to the mind of the soldier.

Hysteria is unsuitable in that its significance to laymen and physicians is not identical; nor does it embrace, for instance, such conditions as the anxiety neuroses. The simple word "nervousness" comprises all the neurotic manifestations seen in war. It furnishes an appeal to the sense of discipline in the armies, and further promotes the growth of a public opinion, both military and civil, which would be of the greatest prophylactic and therapeutic power.

This diagnosis would continue to be divided into nervousness (sick) and nervousness (wounded), as now obtains, according to the external conditions to which the man was exposed at the time of breakdown. This change in military nomenclature would make clear to both soldiers and civilians that such diagnoses need not necessarily be followed by a return to home or to the base, and would clearly indicate the propriety of dealing with such cases diagnostically and therapeutically in rest camps, and especially work camps, in front areas and on the lines of communication.

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[1] It is a pathetic comment on the mode of thought of our times that it should require a cataclysm to make some of us realize the affected futility of such perpetrations as, in painting, "The Nude Descending a Staircase"; in poetry, the cacophony of Futurist verse; in politics, the blinding disasters that follow a vapid internationalism, or in psychology, the notion that because a young man confesses to a weakness for cream cheese he must needs be enamored of a maiden aunt who kept a dairy!

SUMMARY

What has been written here is simply an attempt to set down in general terms the nature of the problem with which we are confronted. In doing so, only the psychologic aspects have been regarded, because these mental symptoms can be examined easily and treated successfully, though empirically, by rest, persuasion, reeducation and the restoration of self-confidence through suggestion and discipline. I have not been unmindful, however, of the physical changes which, accompanying violent emotional disturbances, result in alterations in the physiologic balance of the involuntary nervous system. We cannot yet know whether or not such reflex and secretory activities are the cause or the result of mental and emotional stress.

The collection of clinical and experimental data on such phenomena as, for instance, the functional disorders of cardiac rhythm following emotional tension (for example, for two days after being unpleasantly bombed I found my pulse rate irregular and uniformly over 100, though conscious of no mental strain once the danger was over), or dyspnea accompanied by increased absolute blood acidity, and similar cognate problems may in the future throw light on the association or integral activities of mind and body.

Such data, however, do little, as yet, to reveal the intrinsic nature of mind. To cope adequately with the wastage of health and of armies involved in this question, we must perforce deal with mental phenomena rather than with mind, and apply, with some empiricism, psychologic remedies to psychologic ills.

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TRENCH FEVER

A REPORT OF CLINICAL OBSERVATIONS AND RESEARCH AS TO THE ETIOLOGY, PATHOLOGY, PROPHYLAXIS AND TREATMENT OF TRENCH FEVER AMONG TROOPS

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HAMPSTEAD, ENGLAND

Note.—The work on which this paper is based has been carried out at Hampstead for the War Office Trench Fever Investigation Committee, of which Major-General Sir David Bruce, K.C.B., F.R.S., A.M.S., is chairman. The members are: Lieut.-Col. D. Harvey, C.M.G., R. A. M. C.; Prof. H. Plimmer, F.R.S.; A. W. Bacot, Esq.; Major W. Byam, R. A. M. C.; Lieut.-Col. H. French, R. A. M. C. (Temp.); J. A. Arkwright, Esq.; Sir W. M. Fletcher, K.B.E., F.R.S., and Lieut. A. F. Hird, Gen. List. (Temp.), Secretary.

The Acute Disease

The importance of trench fever lies in the fact that large numbers of soldiers, both officers and men, have suffered from it during the present war, and that though it is not fatal, the morbidity resulting from it on the western front exceeds that from any other disease. Those affected are in many instances permanently unable to resume their former duties, and some pass back to civil life incapacitated and a charge on the state. There is no evidence that the incidence of the disease is decreasing naturally, and some, in fact, that its virulence is tending to increase. From the knowledge of its mode of transmission at present available, there is every reason to suppose that, unless adequate measures are taken to prevent it, the disease may arise and spread wherever the body louse is prevalent, provided that men already infested are sent there from endemic areas.

To emphasize further the importance of trench fever we would state at once that, in its later stages, it is the direct cause of a large percentage of the cases of disordered action of the heart, or the irritable heart of soldiers, of neurasthenia, myalgia and rheumatism with which the beds of our hospitals and spas are now filled. Any campaign undertaken to combat the disease must be supported by even more vigorous measures against scabies than those taken at present, for the etiology of trench fever is intimately connected with the incidence of that disease. The sufferer from scabies presents the necessary skin lesions essential to infection with trench fever and scratches himself in a way that will insure inoculation if the trench fever virus is present.

DEFINITION OF TRENCH FEVER

As no pathognomonic sign or symptom of trench fever is at present recognized, we would define the disease as a blood infection communicable from man to man by means of the louse (*Pediculus humanus*) and possibly other parasites. It is characterized in its early febrile stage by recurrent pyrexia, headache, giddiness, which may be due to disturbances of joint or muscle sense, but early in the disease is generally a true vertigo, pain in the back, pain in the limbs which is chiefly in the legs and often of very considerable severity, a slow pulse in comparison to the degree of fever, conjunctival congestion, sweating, polyuria, a moderate leukocytosis at the height of the fever, with evidence of blood infection in involvement of the spleen and, in a proportion of the cases, of the liver also. A period of unstable temperature follows. Eventually a certain percentage of the patients pass into a stage of chronic ill health. These patients suffer from recurrent pains in the limbs, headaches and nervous manifestations, such as mental depression, excessive tendency to sweating, disordered action of the heart (D. A. H.), and abnormal response to stimuli, all of which are accompanied by a mild degree of anemia and some loss of weight. Damp weather produces exacerbations of all pain in sufferers from the late stages of the disease. The infection, in some cases, is very persistent, and acute febrile relapses may occur after months of quiescence.

THE SEASONAL INCIDENCE

We are unable to speak of the seasonal incidence with certainty, but it appears that the number of infections gradually increases during the cold weather, when delousing is accompanied by increased discomfort and when men huddle together in order to keep warm. The number of cases decreases but slowly throughout the warm months. The incidence must vary directly with the degree of louse infestation in any unit.

CLINICAL CHARACTERISTICS

The following is a summary of the histories obtained in 200 consecutive cases of trench fever in which the patients were sent to Hampstead:

The onset was uncertain in 16 per cent. of these; of the remainder we have classed 32 per cent. as gradual in onset and 52 per cent. as sudden. Some have been quite dramatic in their suddenness; others apparently only felt giddy or shaky during an hour or two before the attack was ushered in by a "splitting headache" and weakness so marked that the victim "could hardly crawl."

A picture of the sudden onset is as follows: "Felt perfectly fit, did a heavy day's work without any distress. Suddenly felt giddy and weak and shaky on the legs; splitting headache, shivers and hot sensations alternately; could not get comfortable in bed, ached more or less all over—worse in loins and legs. Got up two or three times to pass water. Slept badly. A little better in the morning; got up; could hardly stand; pains returned severely."

The typical shin-bone pains may come on at once but, as a rule, appear considerably later.

Prodromal symptoms in the cases of gradual onset were noted in the following order of frequency: pain in the head, pain all over, weakness, pain in the legs, malaise, dyspnea, giddiness, pain in the loins, shivering, pain in the abdomen, diarrhea, constipation, anorexia, nausea, frequent micturition, restlessnes or insomnia.

The prodromal period lasted for two days or longer. Such prodromes are really the early symptoms of definite onset, as in many cases the severity of the symptoms increases gradually during the first few days of the disease. It should be noted that the symptoms in a relapse are often more severe than in the initial attack.

Without doubt trench fever is more often sudden in onset than gradual.

Men from all branches of the service become affected with trench fever, nor does any particular previous illness seem to predispose to the condition.

In our series of 200 cases the symptoms of onset occur in the following order of frequency: pain in the head in 74 per cent.; in the shins, 46 per cent.; in the loins, 31 per cent.; in the knees, 21.5 per cent.; in the ankles, 19 per cent.; in the thighs, 15 per cent.; in the calves, 13 per cent.; shivering and chilliness, 26 per cent.; sweating, 19 per cent.; frequent micturition, 13 per cent.; dizziness, 12 per cent.; nausea and vomiting, 11 per cent.; pain in the shoulders and arms, 8 per cent.; pain in the abdomen, 7.5 per cent., and diarrhea in 5.5 per cent. A similar table including symptoms from the onset to a later period in the disease naturally shows an increase in the frequency of their occurrence; e. g., pains in the head, 92 per cent.; pain in the abdomen, 24 per cent.; pain in the shins, 77 per cent.

Tenderness of the shins, as apart from pain, was remembered by 9 per cent. of the patients as an early symptom, while several referred vaguely to "feeling sore" and as if "they had been kicked" on the day of onset. Thus, in addition to fever, headache may be the only symptom at the onset of the disease. There is reason to think that dizziness is much more common than the figure given would indicate.

The "restlessness" complained of bears some resemblance to the discomfort of "growing pains" of youth, in that position of comfort can be found, and so is unlike the pain of "rheumatism," in which one finds a position of minimum discomfort and is glad to maintain it.

The headache is most commonly felt across the forehead and behind the eyes; but it may be bitemporal or occipital or, less commonly, vertical. Some describe the pain as being right inside the head. Usually one of the earliest symptoms, it is often one of the most severe, persistent and commonly recurrent. It is not associated with tenderness of the scalp. When occipital it is often accompanied by stiffness in the back of the neck.

The character of the pain in the limbs is twofold: (*a*) dull aching or gnawing; more or less continuous, always worse at night, and (*b*) acute pain—shooting or stabbing—which may last many hours, especially at night. The latter pain is nearly always felt in the bone, and most frequently in the tibiae. [Spinal puncture and withdrawal of a small quantity of cerebrospinal fluid has given speedy relief in some of our cases with very acute leg pains. Sometimes the pains recur, but never so severely. The fluid withdrawn has always been clear, though sometimes under slight pressure.]

There is no part of the body which invariably escapes from pain. After a few days, however, the "pain all over" subsides, and localized pain becomes prominent. The loins and lower limbs are most often affected. Pain is usually, but not invariably, symmetrical. The situation of the pain may vary from day to day. Certain observers have suggested that there are two distinct diseases at present termed trench fever and would differentiate them by the presence or absence of shin-bone pain. We are convinced that this is not so, both from clinical observation and from experimental work.

When pain is complained of in the joints, we have not noticed any concomitant swelling; the joints are sometimes painful or stiff to move, but this is due to pain on movement in th[illegible]ructures.

It [illegible] 7.5 per cent. of the patients had pain in the abdomen within the first twenty-four hours, while 24 per cent. noticed it at some time within the first week or two of their illness. In six cases the pain was associated with early diarrhea. Of the 24 per cent.: three patients complained of pain in the right hypochrondrium; twenty-nine patients complained of pain in the left hypochrondrium; thirteen patients complained of pain in the right iliac region, and thirteen patients complained of pain in the left iliac region. The pain in the right iliac region may be so severe as to give rise to a diagnosis of appendicitis.

The pain complained of in the left hypochondrium points in most instances to involvement of the spleen. In early cases the splenic region is frequently so tender that examination is impossible on account of stiffness of the muscles over the organ. An appreciable precentage of all our patients have had palpable spleens during some period of the disease, though such enlargement has never been of more than two finger breadths below the costal margin. Such definite enlargement is most often the result of a prolonged infection. (The spleen was palpable, early in the disease, in three cases.)

Pain in the right hypochrondrium over the liver points probably to changes in that organ, but how far trench fever is responsible is not clear.

A diagnosis of pleurisy had been made in some of the patients sent to us on account of splenic or liver pain.

A peculiar and very constant feature is the rapidity with which there are alternations of shivering and sweating, such alternations occurring several times in the course of a single day or night. True rigors are rare, but have been observed by us and were very marked in an instance of five day fever.

The frequent micturition which was complained of by 13 per cent. of our patients was not associated with pain but resulted in the passage of an increased amount of urine. The polyuria occurs as the temperature falls, and in two of our cases, in which the amount was estimated, 110 and 86 ounces were passed in twenty-four hours toward the end of the initial attack.

During the acute attack the pulse rate is slow in comparison to the degree of fever. The rate rose with each rise of temperature, and a mild degree of disordered action of the heart developed after the fifth week, followed by bradycardia. Such a case may be considered as severe.

A fairly constant feature of the initial attack is a mild degree of conjunctival congestion sufficient to be designated as "pink eye." The condition is usually transient, though it frequently recurs with subsequent rises of temperature.

At first the tongue is lightly coated with fur, though there is nothing characteristic about its appearance. It soon clears and remains remarkably clean.

Affections of the respiratory tract are usually conspicuous by their absence.

Areas of tenderness are frequently associated with the pains, and may involve the skin, muscles, tendons, bones or joint cartilages. The nerve trunks themselves do not appear to be involved. Such tenderness may occur independently of pain, or pain independently of tenderness, and either or both may persist for long periods after the fever has subsided. The extent of the areas of tenderness usually increases with exacerbations of the disease. Such exacerbations may be entirely afebrile. As with the pain the areas of tenderness are usually bilaterally symmetrical, with the exception of those over the front of the chest, where it is common to find only the skin over the left lower ribs involved. The area of skin most frequently found to be hyperalgesic runs from knee to ankle along the outer border of the tibiæ.

As curiosities we have observed instances of nystagmus, aphonia during pyrexia, herpes on lips and trunk, dermatographia, flushing of the skin over the tibiae, and tingling of the fingers and toes.

During an acute attack the patient's general condition obviously deteriorates, and he presents an appearance of exhaustion, the result of constant severe pain and repeated sleepless nights. He becomes anemic, though the color index is rarely below 0.8, and he steadily loses weight.

One patient, while with us, lost 36 pounds in weight during five months.

After a period varying from a few days to about a fortnight from the onset of the disease, the acuteness of the patient's pain subsides, he sleeps well, and his appetite returns. There is even then generally some return of pain each night in some part of his limbs—most commonly the shins, calves or ankles. If he is allowed to get up he finds that walking increases the pain.

During the next week or two, whether pyrexia occurs or not, there are recurrences of symptoms—especially leg pain, each exacerbation being a short replica of his original attack or of some portion of it. When accompanied by marked pyrexia, such recurrences nearly always involve recurrences of headache, pink eye, sweating and often of polyuria. The muscle or bone pain may at such times occur in hitherto unattacked parts. It is during such times that splenic involvement has been most often noted.

In some cases such recurrences are few and slight, and the patient soon feels fit and complains of nothing but slight pain or still slighter tenderness in a limited area of the legs from the knees downward.

In others the recurrence, even if quite late in the disease, may be more severe than in the original attack.

PYREXIA

Much confusion seems to exist as to the various temperature curves encountered in trench fever, and their relation to one another. Some observers would accept only periodic fevers with shin pains as evidence of this disease. Neither periodic fever nor shin pain is essential.

Although we have carefully considered the various types of temperature charts, we find no constant correlation between the fever curve and the clinical course. Any grouping of symptoms may be found associated with each of the various types. Our experimental work supports this view.

As we have stated in a previous paper, there are two forms of fever which occur in different stages of the disease. The first form is an irregular remittent and intermittent fever lasting for a period which rarely exceeds four weeks. The second is a definitely intermittent fever, often showing a regular periodicity and sometimes extending over a period of many weeks.

The first form of fever invariably precedes the second, though the initial attack may be unrecognized owing to the mildness of the symptoms in certain cases.

In the initial attack (first form of fever), three types of curves are seen:

1. A fever wave lasting roughly three days. The maximum temperature observed by us was 104.4, followed by recovery. Such cases are usually diagnosed as influenza. There are probably no continuous fevers if sufficiently frequent observations are made. Some remissions are extremely brief.
2. A similar wave followed, most commonly on the sixth, seventh and eighth days, by a febrile relapse, the interval between the initial wave and relapse being afebrile. Irregular fever may follow.
3. A continuance, more or less complete, of the original fever wave into the relapse. Charts in such cases have been termed "saddle-back" and "pseudo-typhoid." They are often followed by a prolonged period of irregular fever.

On the other hand, the second form of fever occurs late in the disease, and its chart is the one which caused trench fever to be recognized as a definite clinical entity. This form of fever occurs at shorter or longer intervals after the original attack. We have seen it begin immediately after the initial or first form of fever, and also after many months of quiescence, reinfection being excluded.

Such fever may be represented by a single "spike," when it is generally recognized as a relapse, or by a series of such "spikes," when it is most frequently and wrongly considered to be a reinfection.

These spikes of fever, often reaching 104 (the maximum temperature observed by us was 105), recur at intervals which are most often variable in duration, but which may be so regular as to give a periodicity of four days or longer.

PATHOLOGY

Little can be said under the heading of pathology. The causative organism of trench fever remains to be found. The blood picture indicates abnormal activity of the bone marrow, and a moderate and rapidly varying leukocytosis precedes and accompanies the fever waves. The increase of white cells is due to an outpouring of immature polymorphonuclears. In the afebrile intervals the mononuclear elements are relatively increased. The last is probably a condition common to many soldiers at present in the field.

With the fall of temperature the amount of urine passed frequently increases, a trace of albumin is often present, and there is a deposit of cellular elements, though evidence of true nephritis is very rare.

DISTRIBUTION OF LOUSE-BORNE DISEASES

Since trench fever is conveyed by lice, the possibility must be considered of its being carried to all parts of the world where conditions favor the spread of louse-borne diseases. For this reason the distribution of the three diseases, typhus exanthematicus, relapsing fever and trench fever, which are known to be conveyed by lice, has been shown in a map compiled from the writings of several authorities.[1]

An attempt has been made to show the relative prevalence of typhus and relapsing fever in different parts of the world in recent years. Strict accuracy, however, is not possible because information is scanty from the less civilized parts, and much doubt prevails about the nature of certain epidemics. No account has been taken of the war epidemics, information concerning these being fragmentary. That there have been many outbreaks of typhus in Germany and Austria, not only in the prisoners' camps, but also among the civil population, is well known. Terrible epidemics have also occurred in Serbia and Roumania, relapsing fever raging at the same time as typhus.

Typhus Fever.—This disease, once common in western Europe, is now very rare there, though it still lingers in an endemic form in parts of Ireland and in Brittany, and possibly in South Portugal. On the other hand, it occurs frequently in Austria, especially in Galicia. In the Balkans before the war it was not a serious menace, but in Turkey it was often encountered at that time. Over the whole of Russia and the mainland of Asia from about 25° N. it is very prevalent, and frequent epidemics are the rule. In Japan and south of 25° N. on the mainland it is less frequent, and is apparently absent from the central and southern parts of India, East Indies, and the Malay Peninsula, but reappears again in the Celebes. From the rest of Australasia it is absent. In Africa it is very prevalent north of the Sahara, and frequent epidemics occur; south of this barrier it is unknown. It has occurred as localized outbreaks in Canada and the United States, but has never become endemic there. The introduction of the disease was generally traceable to Irish immigrants, to whom the outbreaks were often confined. In Mexico it flourishes on the high ground both in endemic and epidemic form, while the same is true of the line of the Andes in South America. It has been encountered throughout the greater part of South America, but not recently in Guiana or the West Indies.

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[1] Clemow: The Geography of Disease, Cambridge University Press, 1903. Low, R. Bruce: The Epidemiology of Typhus Exanthematicus in Recent Years, Report 44 of the Local Government Board, London, 1914-1915. Nuttall: The Part Played by Pediculus Humanus in the Causation of Disease, Parasitology, 1917, **10**, *No.* 1.

Relapsing Fever.—The distribution of this disease in Europe and North Africa corresponds exactly to that of typhus. In Asia it is less prevalent to the east of the Obi River in the north and the Ural River in the south than to the east of those rivers, though this line has no significance so far as the prevalence of typhus is concerned. The disease has not been definitely reported from Japan, East India, the Malay Peninsula and Australasia (with the possible exception in Australasia of a single death in West Australia [Clemow]). It has been reported from the greater part of India.

Louse-borne relapsing fever has been described as occurring spasmodically over the greater part of North America; the form occurring in Central and South America is possibly tick-borne (Nuttall). South of the Sahara in Africa, relapsing fever has the tick *Ornithodorous moubata* as vector.

Trench Fever.—So far as we are aware, this disease has been reported only from the war zones and places approximating thereto. It is known to have occurred in Flanders and in France, at any rate from the Vosges to the sea, on the Italian front, at Saloniki, and to a small extent in Mesopotamia. It has not been reported from Egypt, Syria or East Africa. It has prevailed in Poland, Galicia and the Bukowina, though whether it has followed the eastern front to the sea we do not know. Most probably it has. Wells and Perkins[2] make no mention of it in their detailed account of war diseases in Roumania.

While we are unable, in the present state of our knowledge, to state definitely that lice occur in every inhabited part of the world, it is probable that they do. They are, however, undoubtedly less plentiful in hot than in cold climates. The known distribution of louse-borne diseases, therefore, by no means corresponds to the distribution of lice. These diseases are diseases of cold rather than of hot climates, of mountainous rather than of low-lying countries, and prevail in winter rather than in summer. They would appear to have originated in the Old World and to have been carried to Mexico and Peru by the Spaniards, where they became endemic on the high ground. In the Old World the tropical belt appears to have formed a barrier which they have been unable to cross, with the curious anomaly of Celebes. In view of what has occurred in America and the distribution of lice, the introduction of louse-borne disease into any country should be carefully guarded against.

PROGNOSIS

About 90 per cent. of all cases yield quickly to ordinary symptomatic treatment, and the patients return to duty in a few weeks.

We make this statement on the authority of observers in France, supported by the evidence of our experimental infections, but are unable to say what numbers of the 90 per cent. have really recovered or subsequently relapsed.

In the smaller group of 10 per cent. the disease pursues a more obstinate course, and the patients in consequence are evacuated to England. It is the group with which we are now specially concerned and to which our experience of the naturally acquired disease is limited.

The character and course of the initial attack is the same for both the groups mentioned above.

An analysis of 236 cases in which the patients were evacuated to England leads to the conclusion that the most reliable guides to prognosis are the physical unfitness of the man, a definitely palpable spleen and the development in the second or third week of a low, irregular type of fever.

Of forty-three patients, or 18.2 per cent. of the whole group, who were physically unfit when they contracted the disease, none were discharged to duty and the average duration of disability was 5.4 months. Twenty per cent. were invalided from the army as permanently unfit. Six men in this subgroup had acute febrile relapses after periods varying from two to five months of apyrexia as observed by us.

Twelve patients, or 5 per cent. of the whole group, showed a definite palpable spleen. Two of these, or 16.6 per cent. of the twelve, were discharged to duty, and four, or 33.3 per cent., were invalided from the army as permanently unfit. The average duration of disability was 5.8 months. One of this group had a febrile relapse after five months of apyrexia.

Of fourteen patients, or 5.9 per cent. of the group, showing an irregular low type of fever after the second week, none were discharged to duty. All were transferred to convalescent hospitals still suffering from symptoms of trench fever, with the exception of two, who were invalided as permanently unfit. The average duration of disability was 8.9 months, when the patients left us. One had a febrile relapse after four months of apyrexia.

These figures should be compared with the results obtained for the whole group, in which fifteen men, or 6.2 per cent., left us free of symptoms. The average duration of disability for the 236 patients was 4.5 months. Febrile relapses occurred in all types of cases. Eight per cent. of 236 patients showed a definite febrile relapse with a temperature of 102 or more after an afebrile period, varying from two to five months, during which the temperature did not exceed 99.4. This percentage would have been much higher were this arbitrary standard of apyrexia not adhered to.

In addition to the foregoing, four patients at present in the hospital have shown similar definite relapses after periods varying from twenty-one to sixty-three days.

Finally, neither the intensity, the seat or the character of the pain, the height of the initial temperature or its duration, nor the suddenness or otherwise of the onset give any indication of the future course of the disease. The patient's weight is the best guide to prognosis in a chronic case. As recovery takes place, the weight steadily increases.

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[2] Wells, H. G., and Perkins, R. G.: Observations on Medical Conditions in Roumania, The Journal A. M. A., March 16, 1918, p. 743.

TREATMENT

Clinical signs being our only guide as to the value of any treatment as a specific, we have controlled our results with a large number of unselected patients who were treated by palliative measures. By means of this control we are able to say that until now we have found no drug or system of therapy which we can consider a specific.

We have seen nothing to convince us that these patients really benefit by physical drill; but we have been most favorably impressed by the results obtained by rest combined with moderate exercise and thyroid therapy. This is not regarded as a specific treatment but as one which reduces the incidence of disordered action of the heart, provided it is begun early enough.

A selected diet, rich in antiberiberi vitamins, was tried in one group of cases, but these patients did not show any better results than those fed on ordinary hospital diet.

Many trench fever patients remain a long time in the hospital on account of concomitant conditions. Of these the most frequent are flat or weak foot, old injuries of the feet, pelvic and lumbar muscles, trench foot, chronic joint changes, pyorrhea alveolaris and intestinal intoxication.

PROPHYLAXIS

Prophylaxis centers around the destruction of lice. In civilian life, wherever organized and sanitary work exists, this should not be a difficult matter. While trench fever has not yet been recognized away from the war zone, the possibility of its appearing when infected men return to their homes must be borne in mind. Body lice still exist in considerable numbers in the poorer parts of towns and in agricultural districts, while outbreaks of head lice are not uncommon even in well regulated schools. Whenever a case of pyrexia of uncertain origin occurs, the clothing and head of the patient should be carefully examined for traces of lice, and if these are found immediate measures should be taken to disinfect those who have been living in close contact with him, and their dwellings. Any of the methods successfully used in the army are available for this purpose. Cleansing stations are already organized in many large towns, but it is of little use cleansing the child and allowing him to return to an infested home.

Among the armies the problem is at once more difficult and more acute.

Successful disinfection, in addition to reducing the incidence of trench fever, will offer security against typhus and relapsing fever and relief from discomfort, which may be so great as even to cause definite neurasthenia. In consequence, since typhoid fever ceased to be an anxiety to army medical officers, the systematic destruction of lice becomes their most urgent duty. Especially is this so as any measures taken against lice are also effective in checking the spread of scabies. In the present war, the head louse and the crab louse, *Phthirus pubis,* have given little trouble, while the body louse has been and is extremely numerous.

It is not enough to allow a man a hot bath and to cleanse his clothing. Eggs are frequently present on the pubic and axillary hair and give at once a new focus of infestation, while the men at present often returned to untreated beds and billets: Blankets, beds, dugouts, hats and billets should all receive attention. That lice are not seen in these does not necessarily mean they are not present. While Peacock[3] is doubtless right in his statement that lice spread mainly from person to person, the important thing is to remove every possible source of reinfestation. In a series of experiments carried out at Hampstead Military Hospital, in which the movements of lice on febrile men were being observed, from 6 to 20 per cent. of the lice employed disappeared in the course of the various trials, of which each lasted for about twenty-four hours. Careful searching did not discover the wanderers, though they would certainly be still in the room.

Lice have a proclivity for wandering, and are able to exist without feeding for a week at ordinary room temperatures, and longer under cooler conditions. Nuttall[4] records ten days at a temperature of 5 C. (41 F.) as the longest period which lice have been known to survive unfed.

Disinfestation of Troops.—For the details and working of the various devices for disinfestation, reference should be made to the writings of Bacot,[5] Nuttall[4] and Peacock.[3]

The following notes are the merest summary of what has become a very bulky subject:

All men from one set of billets, huts or dugouts should be paraded together at the same time for disinfestation, with their blankets and kits if possible.

The men should be shaved free of pubic and axillary hair and chest hair if thick. Their heads should be very closely cropped, and they should be given a hot bath. After the bath their underclothing should be smeared over with some louse-destroying grease to render them repugnant for a time to fresh infestation and to destroy any nits still adhering to them. Every care should be taken when removing hair not to abrade the skin, as careless shaving has been found to increase the incidence of other diseases conveyed by the excreta of lice. The shaving or very close cropping of the body hair is essential, as otherwise nits, which are often present there and are not killed by bathing, remain to reinfest the man. The most satisfactory grease for application to the underclothing is one composed of crude unwhizzed naphthalene from the coke oven, 4 parts; soft soap, 1 part (Bacot and Copeman). That the naphthalene should be as specified is of great importance, and a sample of each delivery should be tested by an expert entomologist. Its odor is not unpleasant to most persons and it causes little or no irritation to the skin. Men should be discouraged from using proprietary remedies, as many of these are useless, disheartening the men and making them skeptical about the efficacy of any remedy. The men should be carefully inspected a week after disinfestation and be urged to report immediately on any reappearance of lice. The entire clothing and bedding of men should be treated by heat or some louse-destroying solution.

Disinfestation by Heat.—All clothing should be included in the treatment, blankets and kits, when possible. The heat may be wet or dry; the latter is preferable, as clothing may then be worn immediately after treatment. Moist heat should never be used for leather articles.

To kill lice and their eggs with certainty, 55 C. (131 F.) for thirty minutes or 60 C. (140 F.) for fifteen minutes must be attained. Such temperatures will not disinfect the excreta of lice. The necessary temperatures for this purpose have not been yet determined.

The heat throughout the chamber should be as even as possible. The garments should be hung on rails or loosely packed to insure the heat's reaching every part. If pegs are used, garments are apt to get torn.

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3. Peacock: Jour. R. A. M. C., July, 1916.
4. Nuttall: Parasitology, 1917, 10.
5. Bacot, A. W.: Brit. Med. Jour., 1916, 2, 447.

The heat of the chamber should be indicated by a maximum thermometer placed so that it can be read from the outside. The Grant Peacock hut and the hot chamber adopted by the Canadian army have been found efficient, as also has the Serbian barrel, though the latter is small. The ideal device for regimental use has yet to be invented. It should be as mobile as a field kitchen, capable of dealing with the clothing of twenty men at a time, simple to work, and economical in firing. It should be capable of being easily loaded and unloaded, and attain the requisite temperature quickly. One end of the chamber should open completely, and all material under treatment be on a movable rack, running on wheels or slides. When treatment is complete, this rack is drawn out and a second, already loaded, thrust in. By this means a minimum of heat is lost and a maximum of time saved. According to Peacock, the time usually occupied in loading, heating up and unloading is about equal to the time of actual disinfestation.

TABLE 1.—DISPOSAL ON DISCHARGE FROM HAMPSTEAD MILITARY HOSPITAL OF TWO HUNDRED AND THIRTY-SIX TRENCH FEVER PATIENTS *

	Number	Per Cent.
To duty	14	5.9
To lower category	12	5.0
To command depot	22	9.3
To convalescent hospital	171	72.4
To civil life as permanently unfit	17	7.2

*Of these, fifteen, or 6.2 per cent., were free of all symptoms of trench fever on discharge. The average duration of disability on day of discharge was 5.4 months.

The ironing of clothing, especially along the seams, with heavy hot irons has been found useful. It is a palliative and not a thorough treatment. In the German army the clothing is pressed against hot iron plates, in preference to hand ironing.

Disinfestation by Solutions.—Bacot and Lloyd have found that all lice and eggs on clothing are destroyed by soaking in a 2 per cent. solution of either (*a*) liquor saponatus cresoli fortis, or (*b*) compound solution of cresol (crude phenol [carbolic acid] and soft soap in equal parts) at any temperature above 32 F. for twenty minutes. One per cent. compound solution of cresol at from 60 to 63 F. was found to be equally effective in twenty minutes, but liquor cresolis less so. The 2 per cent. solutions allow a margin for the weakening of the solutions during use. If fuel is scarce, such soaking may be found preferable to heat.

Fumigation.—While the men are undergoing treatment, their billets, dugouts and huts should be fumigated, together with articles of bedding or clothing not treated by heat or solution.

The best gases to use are sulphur dioxid or hydrocyanic acid gas. The latter is dangerous except in buildings which can be readily ventilated, but it is the more certain of the two. For its production Howard recommends potassium cyanid (from 98 to 99 per cent.), 1 ounce; sulphuric acid, 1½ ounces; water, 3 ounces, for every hundred cubic feet of space.

The percentage of the potassium cyanid should be stated when ordering, as it is sold in three strengths.

The water and sulphuric acid should be mixed in a large vessel, and the requisite amount of cyanid, wrapped up in paper, dropped in. As the gas is released with violent effervescence at once, the operator should leave the room without delay.

Formaldehyd is useless, and it must not be thought that any gas which is fatal to man is necessarily so to the louse.

Finally we particularly wish to advocate the provision of disinfestation equipment for every unit as part of the appanage of every regimental medical officer. This disinfestation could then be applied by all sanitary squads, who would need but little instruction to make them efficient. The only things necessary would be some simple form of mobile oven as suggested already and a plentiful supply of the naphthalene paste. An oven which would take the clothing of twenty men would enable a company to be cleansed in about ten hours. Little or no disorganization would thus be caused, and disinfestation could be carried out as frequently as was found necessary.

In all disinfestation the watchword must be thoroughness. The more thorough the treatment, the less frequent the repetition.

Now that trench fever is known to be a louse-borne disease, it is certain that active measures will be taken to combat it, but there are many practical difficulties which make it more than unlikely that the army in the field will ever be freed from lice under present circumstances. During a period of stress such as our armies are now passing through, disinfestation, no matter how well organized, is bound to be imperfect, and unless some simpler means of repelling or destroying can be devised, trench fever will continue to claim its victims. Nothing short of specially treated clothing capable of preventing lousiness would meet the case. From what we have seen of experimental trench fever infections, it is probable that most of the mild and indefinite attacks of pyrexia of uncertain origin must be attributed to the same source as recognized cases of this disease. The total then becomes appalling.

While still looking to the destruction of lice as our best hope for reducing this wastage, our efforts at home should now be turned to the production of a treatment which will render the blood of a trench fever patient incapable of infecting lice.

Of the men considered to be recovered and returned to the fighting line, many will undoubtedly have further febrile relapses. During such relapses they will be capable of infecting lice. Our present methods of treatment do nothing to prevent this and must therefore be improved on. This is necessary not only in the interests of those in the field but also in order to prevent men infected from becoming the unhappy invalids whose condition, at present, time alone can cure. To this end the organism of trench fever should be our chief quest, as knowledge of its nature is essential to sound work on the production of a specific therapy.

TABLE 2.—INCIDENCE OF DISORDERED ACTION OF THE HEART IN FOUR HUNDRED AND TWO CASES OF TRENCH FEVER *

	Number	Per cent.
Due to all causes	155	38.5
Due to causes other than trench fever	44	10.9
Due to trench fever with onset of disordered action of of heart after admission to Hampstead	42	10.4
Due to trench fever with onset of disordered action of heart after admission to Hampstead	42	10.4

*Average day of disease on which disordered action of heart was first recorded in cases developing disordered action of heart in Hampstead Hospital, 27.3. Extremes of onset of disordered action of heart from the fifteenth to the sixty-second day.

(*To be continued*)

An Efficient and Safe Insecticide.—An emulsion of petroleum and soft soap has been used successfully in India for ridding houses of plague infested fleas. A better composition, according to the *Medical Press and Circular,* is that devised by Cousins in which soft soap, petroleum and naphthalene are the ingredients. This combination, it is said, seems to enhance the action of each in a remarkable way when used as an insecticide. It is easy to prepare, keeps indefinitely, and is a soapy substance easily dissolved in cold water. In the proportion of 1 ounce to the quart of water it forms a wash in which fleas and pediculi are said to perish almost instantly. It is suggested that this would be an easy and practical way of dipping and washing clothes infested with *Pediculi vestimenti* in the army and elsewhere.

PHYSICAL EXAMINATIONS UNDER THE SELECTIVE SERVICE

A MEETING OF THE SECTION ON MISCELLANEOUS TOPICS, HELD IN THE STUDEBAKER THEATER, CHICAGO, THURSDAY, JUNE 13*

The meeting was called to order by Major John M. Dodson, Medical Aide to the Governor of Illinois, who acted as secretary of the meeting.

Introduction by Major John M. Dodson

MAJOR JOHN M. DODSON said: In many respects the topic for discussion this afternoon is the most important subject before the medical profession of America today. It concerns a larger number of physicians than any other, because between 23,000 and 25,000 physicians in this country are today engaged in the important task of examining registrants. On the physical quality of the men who are inducted into service depends the efficiency and strength of the forces that we are sending abroad to help our allies. It is most important that these examinations leave no fit man who ought to serve behind, and that they induct no unfit man into the service. One of the main purposes of the discussion this afternoon is to bring together the various agencies concerned in these examinations, to the end that there may be the most complete coordination and cooperation.

The meeting will be presided over by Major Hubert Work, Medical Aide to the Provost Marshal-General.

Address of the Chairman, Major Hubert Work, Medical Aide to Provost Marshal-General Crowder

MAJOR HUBERT WORK said: We hear a great deal in these troubled times. Everything we do hear is tinged by the sentiment of patriotism. We see on the buildings and on the fences as we travel over the country that food will win the war; in another place that fuel will win the war. But I am here from the Provost Marshal-General's Office to say that in my opinion the men connected with the Selective Service system will win the war—you men connected with the Local Boards, with the Medical Advisory Boards and the District Boards. The character or efficiency of the registrants who are inducted into the service lies with you. It is not possible for this or any other country, or any other countries joined together, to win the war against the Hun except through its man power. You who select these men must determine whether or not we shall win the war.

My position in the Provost Marshal-General's Office is rather an anomalous one. I think I am the "trouble man." Medical members of Local Boards and Medical Advisory Boards send their complaints and grievances to the Adjutant-General of the state. He, in turn, sends them to the Provost Marshal-General's Office, and the chief clerk of that office very kindly lays them on my desk.

This committee has selected speakers to address you, one from a Local Board, another from a District Board, an examining surgeon from a camp, and the man also who has joined the Provost Marshal-General's Office with the Surgeon-General's Office in a medical way.

I take pleasure in introducing as the first speaker Dr. James B. Herrick of Chicago, representing the District Board of Appeal.

Point of View of the District Boards of Appeal, Dr. James B. Herrick, District Board, Chicago

DR. JAMES B. HERRICK said: The District Board has original jurisdiction in claims for exemption or deferred classification on occupational grounds. In nearly all other cases that come before it the board acts as a court of appeal; the registrant appeals from the decision of the Local Board that he is qualified for Army service, or the government appeals from the decision that the man is unfit to serve, or some knotty case is sent to the District Board for its decisive ruling.

Among the appeals there is always a large number in which the question of physical qualification is concerned. For this reason one member of the District Board is usually a physician. Because of the technical medical character of the appeal and the papers accompanying it, the board commonly delegates the investigation of the merits of such a case to the physician member and generally decides according to his recommendation. This throws a considerable load of responsibility on the medical man of the board.

Now, according to the regulations governing the Selective Service, the District Board is explicitly forbidden to reexamine a registrant. "In considering a case appealed on the ground of physical qualification, the District Board shall neither conduct any new physical examination, nor shall it receive or consider any evidence which was not considered by the Local Board" (S. S. R., Sec. 126, p. 65). The physician of the District Board must reach his conclusion solely on the evidence as shown in the record of the examination by the Local Board and the Medical Advisory Board.

NECESSITY OF GOOD RECORDS

Has it ever occurred to the members of these boards what a difficult task they sometimes set the District Board physician because of the meagerness of their record? A Local Board physician says tersely "the right apex." The Medical Advisory Board writes "lung neg." How can the District Board physician decide? Where is the evidence? He can merely set one man's opinion—not evidence—against another's and, if he happens to know the two examiners, attach the greater weight to the opinion of the one he regards as the more reliable, and decide accordingly: or he can do, as he should, send back the papers for a reexamination with a full record of findings. Often the District Board physician longs for the days of the first draft, when it was his privilege and duty, personally or through his selected aides, to examine appealing registrants. He often wishes he could listen for a few seconds to the doubtful apex, place his hand over the questionable heart, see for himself the varicose veins called trifling by one, extensive by another, dreadfully severe by the appellant. He would in this way have real evidence on which to base his opinion and his recommendation to his board. Numerous errors due to hasty examination come before the District Board physician, many unjust decisions are due to failure to read or comply with the Selective Service Regulations concerning physical qualifications, but the most exasperating cases are those in which Local and Medical Advisory Boards make these unsatisfactory records of opinions only, without evidence. Particularly when the opinions of these two boards differ should the reasons for the disagreement be clearly set forth. Not only would this lighten the work of the District Board, but what is of more importance, would result in more even justice and often save unnecessary trouble and expense to the drafted man and the government.

HISTORY OF REGISTRANT

It has semed to me that there was at times a tendency to overlook or underestimate the value of the health history of the registrant. In private practice the history—anamnesis—counts for much. In many illnesses it is of far more value than the physical or laboratory findings. Naturally the history of previous or present illness, as related by a drafted man anxious to escape service, should be viewed very differently from that of the man eager to volunteer. The statements, even though sworn to, of interested relatives and obliging family physicians or paid consultants should be accepted with caution and some suspicion. But epilepsy, previous spells of insanity or other nervous troubles can usually be learned about only from the history. An apparently innocent heart murmur may acquire new significance in the light of a preceding rheumatism; a clear history of ulcer of the stomach, loose cartilage of the knee joint, or of hematuria, should justly have weight in the reaching of a decision as to the physical qualifications of a prospective soldier. Local and Medical Advisory Boards should not be too ready to turn a deaf ear to the history.

CORRELATION OF EXAMINATIONS

There is an injustice that has sometimes been done patriotic young men who have volunteered, sometimes more than once, for service—perhaps long before the first registration of June 5, 1917—but have been rejected on account of physical defects but who are now adjudged physically fit by the physicians examining for the draft boards. Such men, after being turned down by the government, may naturally h [illegible] ded themselves as physically unfit, may have assumed business responsibilities they would not otherwise have assumed, may have married after June 5—the dreadful late marriage—and now are ordered by the government to serve. Some more uniform standard or more uniform practice should obtain so that a man once definitely refused admittance to the Regular or National Army for physical defects may not, except in time of great emergency, be liable to be called to forced service. I know of men who have served in the Regular Army and have been rejected after trial as unfit, but who were adjudged fit by Local Boards, though the certificates of discharge from the Army were presented as well as statements of rejection by recruiting officers of Army, Navy, or Medical Reserve Corps. I have seen letters from Army officers to some of these young men who were being subjected to the annoyance of these examinations, and their indignant recognition of the injustice of it all was clearly set forth by such words as "insult," "outrage," "ought not to be permitted," etc. The new rules, as I understand it, will be uniform for all branches of the armies of the United States. This will help much to do away with this difficulty.

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* Report of special meetings held as a part of the scientific assembly at the Sixty-Ninth Annual Session of the American Medical Association.

DANGERS OF SUPERSPECIALISM

I am a little perturbed also at what has seemed to me to be a danger all along the line from what might be called superspecialism, the overuse of specialism in our Army hospitals, cantonments and Medical Advisory Boards. The necessity for specialists—oculists, aurists, heart specialists, neurologists, brain surgeons, bone surgeons and others—is plain; it needs no defense. But the tendency of many specialists to overestimate the defect found in their particular lines or to ignore conditions in other organs than those with which they are well acquainted is well known. There should always be some big, broad-minded physician or surgeon of learning, good judgment and experience to sum up all the findings, and, both on the record and on his own inspection of the soldier or registrant, reach the final conclusion. The soldier has to be judged as a whole, and not in small anatomic or even physiologic fragments. The wise microscopist looks at his specimen of tissue, not alone with the oil immersion lens, but with the low power as well. Only in this way does he get the large, full image with the proper relation of parts. A sick man or one thought to be ill should be viewed in the same way. I was much impressed with what one of our brightest and keenest Medical Reserve Corps men told me after he had spent many weeks in examining large numbers of recruits. His first inclination, he said, was to examine according to the rule of the textbook, the laboratory, the instrument of precision, and this in many cases was indispensable. But he soon learned to respect most highly the shrewd observations of an old, experienced, Regular Army colonel who, sitting in a chair, seemingly idly smoking, was yet watching everything, and whose diagnoses of acceptability or unfitness seldom went wrong. He, without touching the man, sized him up as he stood stripped before him—from his build, color, gait, breathing, method of answering questions, while the younger doctors were going through the detailed examination. Is there not a danger that this element may be sacrificed to the necessary but narrowing specialism, unless particular care can be taken to guard against it?

VALUE OF EXAMINATIONS

There is still one fact that sometimes cuts a little deep, gets beneath the skin of the Local, Medical Advisory or occasionally the District Board physician and it is this: Men are sometimes returned from camp or cantonment as physically unfit because the Army physician has examined them and so declared them to be. Now the Army physician's examination is final and authoritative as it should be. But the reason the taunt of the returned man cuts when he hints or plainly says to the board physician that he, the board physician, evidently did not understand his business, is that sometimes the Army examination has been made by a physician who in civilian life was known as comparatively young, inexperienced, and in every way outclassed by the board doctor who, perhaps, was his teacher or medical adviser, and whose ability to recognize tuberculosis, heart disease, hernia or flatfoot is surely equal to that of the Army man. But the rank of officer, the uniform, has changed all this. These cases may be exceptional, but the point I wish to make is to speak in defense of the physicians on the Local and Advisory Boards who, though not in uniform, are not necessarily to be regarded as inferior in ability or good judgment to the physician in khaki.

The District Board has occasionally been criticized on the ground that it is a stickler for mere form and technicality. This criticism seems to me unjust. At least, I know that in the District Board with which I have been connected, and in those with whose workings I have been personally acquainted, such has not been the intent of the members. When, late in August of last year, the papers began to filter through from the Local Boards, we were in despair because so few were in proper form and so many important documents were often lacking. But we believed we were in office to try to give to each man whose case was before us, and to the government that had asked us to serve, a square deal. In order to secure justice, technical points and trifling irregularities were inconsequential. Physical examination blanks were often lacking, affidavits were poorly executed, papers might be missing; but no request by a government agent for most careful scrutiny of a case, no statement by a registrant, however brief or poorly worded it might be, no long-winded affidavit drawn up by the prominent attorney for his wealthy client, no plea from the poor widow who claimed her son was her only support, was ruled out as evidence if it had the ring of sincerity about it. We viewed nothing as a "mere scrap of paper." Those scraps of paper too often meant whether it was this boy or the other boy, yours or mine, who was to go, perhaps to his death. Even now, with such marked improvement in the form in which appeals come before the District Boards, the essential aim is to secure justice, and not to stand too much on the smaller technical points. And this is clearly the intent of the government, as orders from the Provost Marshal-General's Office have more than once indicated.

When I was asked to speak today it was requested that I make suggestions and criticisms. And such I have freely made with the hope that they may be helpful. No other motive is conceivable in such a time as this.

It is easy to criticize the Selective Service Law and its operation. But when one considers the stupendous character of the undertaking, the orderly way in which a splendid army of nearly 1,600,000 has been raised, the essential justice with which this end has been accomplished, all criticism sinks into insignificance. But all had to learn, from the highest in rank to the humblest clerk in the Local Board; mistakes were made—the greatest one, in my judgment, being the injection of the element of haste into the work from the first day. But by experience, by correction, by a process of evolution, the Selective Service Law now operates smoothly, rapidly, effectively. Well may General Crowder be proud of the accomplishments of his large body of civilian soldiers; and the various boards of this country are surely proud to be commanded by such inspiring and efficient commanders as the Provost Marshal-General and his staff. But when the complete history of the operation of the Selective Service shall be written, I believe our hats will be lifted to those pioneer men of the Local Boards who, nearly one year ago, took oath agreeing to perform faithfully the duties of an office newly created, duties of unknown character, who, with new tasks piled on them day after day, often with insufficient directions or supplies, sometimes with the criticism of a curious and not always scrupulous press, with the frequent command: "Hurry up! Hurry up!" made the attempt to examine and classify double the number planned for in the shortest possible time. There may have been some incompetent men in the Local Boards, perhaps some lukewarm or disloyal, some shirks; but the great mass were as capable, loyal, faithful and self-sacrificing of time, money, health and comfort as those who went to the front. And they made good. They delivered the men. All honor to them!

Introduction of Colonel Billings

Major Hubert Work said: Soon after the first of the year the Provost Marshal-General asked the Surgeon-General to assign a Medical Reserve officer to his office to take up the medical questions constantly coming before him. The Surgeon-General consented, and recommended Major Billings of Chicago. Major Billings was assigned to this work, and of course, with customary thoroughness, he took up the Selective Service Law in one hand, and Form 64 in the other, and attempted to harmonize them. He assumed at first that it could be done, and that they would both lie quietly together in Group A. He soon realized, however, that quite a little of Form 64 belonged in Group B. After a little further study, he thought perhaps it all belonged in Group C, "Qualified for special and limited service." A little further study, and, his patience exhausted, he said: "The whole thing belongs in Group D. I will write a new book."

The Surgeon-General appointed a committee to revise Form 64, and Major Billings was one of the committee. He did the greater part of that work, and the standards of physical examination are being given out today. Colonel Billings formed the connecting link between the Provost Marshal-General's Office and the Surgeon-General's Office, and he has laid a foundation which, I assure you, is going to be difficult for his successor to cover.

Address of Colonel Frank Billings, Surgeon-General's Office

Colonel Billings said: It is true that when I was assigned to duty in the office of the Provost Marshal-General, I found conditions as to medicine rather below par. They received me kindly and gave me every opportunity to advise the boards in working out their problems. Among the men there who really had the crux of the work to do were two. Colonel Johnson, now General Johnson, was Deputy Provost-Marshal; and I think he knew more about medicine, after the work he did in helping to compile the Selective Service Regulations, than many of us; and his right hand in the doing of that work was Lieut.-Col. J. S. Easby-Smith, whom we are fortunate in having here in Chicago to talk for the Provost Marshal.

THE STANDARDS OF PHYSICAL EXAMINATION

The difficulty that the Provost Marshal labored under was the character of the standards for physical examination. "Changes 3," issued, January 28, to Local Boards, was the fundamental basis for physical examination. That was written for Local Boards. Form 64, issued about March 21, was built on "Changes 3." The men who formulated "Changes 3" and "Form 64" composed a committee of fifteen. Three were the regular medical officers of the Army, and the remainder the Reserve Corps men, representing general medicine, general surgery, and all of the specialties. They, with the Surgeon-General, believed that many men who had defects could be made physically fit for general military service if they were inducted and opportunity given for remedy in camp. But as it happened there were so many men inducted who had what was called small operable hernias and other defects remediable in a short period of time that the facilities in the camps were not great enough to take care of them.

After a few weeks, in an interview, General Crowder said: "I have great sympathy with the great medical profession in its desire to remedy defects and to attempt to improve mankind physically, but, sir, we are not here to remedy defects. We are here to get an armed force trained quickly, and to get it abroad to whip the Germans."

The next thing that troubled us in the office was the fact that "Changes 3," promulgated by the Adjutant-General as the standard of physical examination for all branches of the service, was, unfortunately, not so promulgated. Then when Form 64 was issued, and it was taken with the approval of the Surgeon-General to the Adjutant-General for promulgation to all branches of the service, it was found that "Changes 3" had not gone to all branches. Then it took time to get that off; unfortunately, it was sent by mail, March 28, instead of by telegram. We had the paradox of the Medical Advisory Boards stating certain standards for physical conditions qualifying for general military service, and boards in camps and in different posts using a different standard, which led to confusion. That led to a revision in our camps on the standards that had been in use before, and the acceptance by Medical Advisory Boards of defects that were not disqualifying under the existing standards. Finally, the Surgeon-General was requested to formulate a new standard of physical examination. On that board he appointed practically all Regular Army officers, at my request, because we civilian physicians, qualified as we may be in civil practice, know but little about military medicine.

DISQUALIFIED AND DEFERRED CLASSES

Bearing in mind the objection made by the Provost Marshal, this new standard differs from the old in that no man is accepted for general military service who cannot be immediately inducted into service. It is true that certain small defects are recognized as not disqualifying for immediate induction. It is understood that unless we do recognize certain defects, like the venereal diseases, they might be acquired by many men as a cause of rejection. It is well known that if intensively and properly treated, these defects can soon be overcome. Other slight defects remediable by small operations that would probably not keep a man from active training more than a few days or a week at the most were accepted as defects not disqualifying for general military service.

Then it was recognized that defects might be recognized as not disqualifying for general military service when those defects are cured. They should be placed in a group of defects which, when remedied, would permit the registrant to be inducted; therefore they should be deferred. So Group B is retained, and in that is placed, for instance, every form of hernia that is remediable. In that group also was placed as remediable—perhaps on first thought one would say the habit or defect is such that the man never could be made whole—drug addiction. However, some man might acquire the habit of drug addiction to escape the draft, so these addicts may be placed in the deferred remediable group and left there for such time as the state may consider requisite. It was also recognized that we could safely do that because it is not expected that those men will be called or inducted into the service until the Surgeon-General shall have organized the physicians to remedy them, and they will not have to remain in camp a long time.

POWER TO REMEDY DEFECTS

Many members of Local and Advisory Boards have written, since Form 64 was promulgated, to know if these men with defects which place them in Group B could be remedied before induction, not under federal authority. No one can compel a man, in civil life, to undergo an operation. As you know, probably, the Judge Advocate-General has rendered a decision that when a man is inducted into the service he may be remedied; and if he refuses to obey the order he is subject to court martial. In some camps court martial has already sentenced men to various terms of imprisonment in federal prisons. However, we cannot compel men before induction, but we may advise them. So Local and Advisory Boards may induce the individual with a defect which would place him in Group B to go to a civilian hospital and be remedied, but not at government expense.

SPECIAL AND LIMITED MILITARY SERVICE

The difficulty has also come, to some degree, with Local and Advisory Boards with reference to the recognition of that group known as Group C for special and limited service. That group has grown enormously. I think that according to the last I heard from the Provost Marshal-General's Office it is now more than 225,000 men. Perhaps many of them had some defects which should place them in Group B, these Local and District Boards not understanding that they had defects that could be remedied. The principle is that the man who has defects which cannot be remedied and which disqualify him for general military service, and yet of such a character that they do not prevent him from following a useful vocation in civil life which he therefore could follow in military life, may be accepted for special and limited service. That the nomenclature is not identical is unfortunate. In the Provost Marshal-General's Office this designation is "special and limited service." In some camps it is known as "partial duty status"; and in the Surgeon-General's Office and in the Division of Sanitation where that class of registrants falls in the camp, it is known as "domestic service," "domestic" meaning not fit for overseas service.

THE NEW REGULATIONS

This new Form 75 of Standards of Physical Examination governs entrances to all departments of the Army. In the Surgeon-General's Office, we who have had to do with this feel that it is a standard that may be accepted by all of you. There are no ambiguous terms in it. It is not intended to be considered entirely, perhaps, as an authority on which you will act. It is intended to be a guide to your work. Nothing can take away from you your judgment and discretion about the medical or the physical fitness of a registrant to serve. If we rob you of that, you are bound to weaken the service. On page 3, Section 8, you will find a section that contains the kernel or the law of truth. Let me read it:

> Local Boards and Medical Advisory Boards should be especially careful in the selection of registrants who suffer from defects of vision, defects of hearing, and with chronic discharge from the ear or ears; toxic conditions associated with abnormal conditions of the thyroid gland; valvular disease of the heart; tuberculosis; epilepsy, mental disease or deficiency, and irremediable defects of the feet. In other words, to make a good soldier the registrant must be able to see well, have comparatively good hearing, his heart must be able to stand the stress of physical exertion, he must be intelligent enough to understand and execute military maneuvers, obey commands, and protect himself, and must be able to transport himself by walking as the exigencies of military life may demand.

That limited the surgical operations to a great extent. We saw that after those operations a man would not be fit for military service.

EXAMINATION OF RECRUITS

Just a point on the examination, and that is for the Local Board not to let the registrant know what he is troubled with. Quite certainly, if the man is not very strongly disposed to do duty, and you look at him and say "Flatfoot," and then shake your head and deliberate as to whether you had better accept him, you will have trouble at the camp.

Now, we had some trouble to some extent in our examinations at the recruiting depots. I take a look at a man's feet and casually remark to him: "Your feet never trouble you?" "Oh, no, sir, no, sir, no." All right; then I slip over to the top of his head, and I say: "Pes planus." The Latin is not very good, but the clerk got down there the fact that he had flatfoot, and he did not know it; and so it was with a great many of those other conditions.

Our best example is irritable heart. Soldiers find out they have irritable heart, and when a soldier does find it out he is a very difficult man to deal with. At a clinic held in our camp recently we had a cardiovascular specialist give a clinic on irritable heart. We brought in from the wards a number of men with irritable heart, and it was a very good demonstration undoubtedly, but he expended every man; so far as any further service to the government is concerned, he expended every man that we showed him.

The point I can best bring out is: First, that one has to study the attitude and make the most of the attitude of the man. If a man has a defect that one considers questionable, then everything depends on his attitude. If he is disposed to go into the service, he will probably carry it around without a bit of trouble. If he is disposed not to go, and does not want to go, he is going to come back from the camp because if he has a defect and we pass him to an organization commander, he cannot make the man do duty. He is going to come back on us on a sick report time and again until finally he is discharged. The next point is to be very careful about not letting the man who is being examined know of any defect which has been noticed but which does not possibly disqualify him.

Introduction of Lieut.-Col. J. S. Easby-Smith

Major Hubert Work said: Lieut.-Col. J. S. Easby-Smith of Washington, representing Provost Marshal-General Crowder, will next speak. If during his talk any question occurs to you, make a note of it and hand it to the secretary. When Colonel Easby-Smith is through speaking he will be glad to answer any questions.

Address of Lieut.-Col. J. S. Easby-Smith, Representing Provost Marshal-General Crowder

Lieut.-Col. J. S. Easby-Smith said: Just before I left Washington, General Crowder said: "I want you to deliver to the medical men assembled in Chicago, and to the members of the boards who may be there, a message." He said: "Neither you nor I can express adequately what ought to be said to them; because there is no language which can express the debt of gratitude which the American people owe to the medical profession of this country for their assistance in the administration of the Selective Service Law. But tell them, as best you can, how much their work is valued and appreciated."

Colonel Billings mentioned me, and so did Major Work, as having had a great deal to do with the formulation of the Selective Service Regulations. They gave you, I fear, a false impression. The one man in this country to whom is due credit for the gigantic success of the Selective Service Law is Major-General Crowder. He is one of the ablest men in public life today. After all, it is the man who finally passes on questions, the man who selects or rejects what is proposed to him, who is responsible; and unless he is a man of the caliber to decide rightly, things will go wrongly. Never from the day he became Provost Marshal-General to this time has General Crowder decided wrongly.

A brief description of the working machinery of the Selective Service System and of its general character may properly be a preface to what I am going to say.

Let us think of the administrative edifice of the law as a pyramid, and begin at the apex. There, at the apex, is the President of the United States, who, by the Selective Service Law, passed by Congress, is given supreme discretion in the making of regulations for the application and administration of this law. Under his Secretary of War he has placed on the Provost Marshal-General the responsibility for the administration of that law. In providing for the machinery for the administration of the law it immediately became apparent to General Crowder that it was utterly impossible to attempt an administration of this law through a bureau or an office or a department in Washington; impracticable, impossible and also impolitic. Why? Because this law, to be popular and successful, must be enforced by the people at home, by the members of the community whose sons are going forth to battle. So that the very first thing to do was to decentralize this administration and put the control in each state, under your chosen leader in each state, your Governor; and the natural officer to act for him in this matter was, of course, his Adjutant-General. That having been done, it then became necessary for the state to decentralize. The law had practically provided for that, by authorizing Local Boards to pass, in the first instance, on all these cases, whether it be the question of a man's availability or eligibility or liability for draft, or his physical qualifications to go into the Army. So in the next stratum below come the Local Boards, and then the District Boards, to review, as courts of appeal, decisions of the Local Boards in all cases except in industrial and agricultural claims, in which they have original jurisdiction. Of course, Local Boards, with appellate jurisdiction in the District Boards, decide questions of physical qualifications. The only question which is not final with the boards, whether it be a Local Board, a Medical Advisory Board or a District Board, is the question of physical qualification; because, after all, that final decision is vested in the surgeon at the camp.

During the first draft, I have no doubt perhaps the majority of you men served in one capacity or another, either on Local Boards or as examining physicians, or as members of District Boards. The regulations were rather small in number; they were rather small in volume; but the boards taking the law as their constitution, and the few regulations which were issued as their immediate guide, did a tremendous work in a comparatively brief time. After the great rush of the first draft was over, and after you had selected and physically examined enough men to fill the camps that were then available, a breathing spell came. It was apparent to everybody, not only to the Provost Marshal-General's Office, but to you, that some more definite system must be provided. There has been something said here of the regulations having been prepared by the Provost Marshal-General and by his office. That is not wholly correct. When it became necessary to adopt new, and what we hoped would be permanent, regulations, we asked the governors all over this country to send to Washington men, laymen, lawyers and physicians who had shown great proficiency in the administration of the Selective Service Law, so that with their aid and advice a set of regulations might be prepared, not only from the standpoint arising from the experience of the Provost Marshal-General's Office, but from the standpoint of you men in the field who were doing the work and deciding the practical questions.

Therefore, a committee was appointed in the Provost Marshal-General's Office, and I had the honor to be one of that committee, and conferred with these men from the field.

Next to General Crowder the man who has done more as an individual than any other man to make the administration of the Selective Service Law a success is Hugh Johnson, who, entering the Provost Marshal-General's Office a year ago as a captain of cavalry, left it as a colonel, and is now a brigadier-general at the head of one of the most important bureaus of the War Department. With him and with the board members who came in, we worked. We asked for suggestions. We conferred with them for weeks.

We realized that with all these workers in the field it was necessary to have auxiliary forces to aid in this work, because we foresaw then that we should not have to raise merely an army of 687,000 men, but that we should have to take this array of eight or nine million men and examine every one of them, to decide what? First, his availability to go into the army, and that availability measured inversely by his value in the place that he then occupied in our domestic arrangement; and, secondly, to determine the physical qualifications of each of those millions of men. It was the purpose of General Crowder that instead of merely dividing these men into the sheep and the goats as we had before; that is, into the men who were to go and the men who were to stay at home; we must take the whole mass and classify them, group them into classes, so that when the time came—if the time did come, and, as you know, the time has come—when we had to send great bodies of men forward, we should have lists of men classified and prepared, ready to be called in their order of availability, in the order of the inverse ratio to the necessity for their remaining at home, and in direct ratio to their lack of value to the community. So that it was decided to make five classes, and put into Class 1 men who were immediately available, and so on running down through the five classes to men who were legally exempt, required to be exempted by the law, or put there on account of moral or physical deficiency.

When we finally submitted to the Secretary of War, after a number of conferences, the final classification rules, and he saw the classification sheet, and the various groupings into which we classed these men, and we read off to him that we had in Class 5 the lunatics, the aliens who had not declared their intention, the aliens who had not waived, the morally deficient, the physically deficient, the federal and state, legislative, executive and judicial officers, ministers of the gospel and divinity students, and finally alien enemies, the secretary said: "Well, you have got a queer assortment there, and I am afraid that if I were a few years younger I should belong in Class 5, among the aliens, lunatics and convicts."

However, having prepared the regulations for classification, it became necessary to provide for the physical examinations. We realized that we needed more aid there from the outside than perhaps on any other branch of the regulations, and to some of the prominent medical men of this country, to some of the men who have been high in the councils of the American Medical Association, is due, individually, a large share of the reward that will come to the medical men for the work that has been done in regard to physical examination.

When we first began to study and write these regulations we sent for one man, Dr. George H. Simmons, editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

We also sent for a man who had had a great deal of experience throughout the first draft as a member of the District Board for the District of Columbia, Dr. William C. Woodward, health officer of the District of Columbia, and an honored member of your Association, because we realized the necessity of auxiliary organizations to help the boards do their work, the base of the pyramid. At the same time, we appealed to the American Bar Association for help in another direction. Dr. Simmons and Dr. Woodward came and consulted with us; and as a result of the conferences a joint committee was appointed composed, I think, of three members of the American Medical Association, and representatives of the Surgeon-General's Office and of the Council of Defense.

DEVELOPMENT OF REGULATIONS

It soon became apparent that the one thing that we all ought to strive for with reference to physical examinations was to secure uniformity. You all know perfectly well that the Army regulations, which are the result of years and years of Army experience, were built on the volunteer proposition. They were told to secure a man 100 per cent physically perfect. The Army was small. Men came and volunteered their services. The Army could turn down a man who was not physically perfect, practically, and the regulations were based on that. Of course, the regulations that were to apply to men to be selected under the law did not require a 100 per cent man, and no need to. During the first draft and until recently, and right up to this time, there has been an application of one standard by the boards and another standard by the surgeons at the camp, both doing their full duty. Boards were governed by the regulations issued for their instruction from the office of the Provost Marshal-General, and camp surgeons were governed by their Army regulations. There were about 29 or 30 per cent. of men rejected by the boards in the first draft, and 7 or 8 per cent. of those sent to camp were rejected, making some 38 per cent. of men finally rejected as physically unfit under the first draft. I will show presently how this has been very much improved. Concerning the new regulations, I will not go into detail at any great length, except to say that Form 64 was prepared, not for the purpose of governing camp surgeons, but primarily to give Local and Medical Advisory Boards and District Boards standards for the qualifications of registrants. It was prepared in the Surgeon-General's Office by a committee that had in view the best application of it in the camp; and subsequently it was promulgated for use in camps. Defects were discovered. It became necessary, for various reasons, to print a new edition, and this new edition, Form 75, was prepared for the express purpose of raising the standards for boards as set out in Form 64, and somewhat lowering the standards which governed Army surgeons, so that there could be issued a document which would give the boards and the camp surgeons the same standards, so that they could both proceed according to the same rules, and we hope thereby to reduce this lack of uniformity to a minimum. This was prepared by a committee appointed by the Surgeon-General, of which committee a very important member was Colonel Billings. I need not dilate on his capabilities as a physician; he was active here as medical aide to the Governor of Illinois, and he was subsequently in the Provost Marshal-General's Office and transferred later to the Surgeon-General's Office. With a thorough familiarity with the needs of the Selective Service System, he worked with this committee of regular Army surgeons in the Surgeon-General's Office; and I believe that they have produced a work here which removes all the inconsistencies and all the doubts in the previous physical examination regulations. It is a book which will live up to its title. It was written in the Surgeon-General's Office, and the title is: "Standards of Physical Examination Governing the Entrance to All Branches of the Armies of the United States: For the Use of Medical Officers of the Regular Army, National Army, National Guard, Medical Reserve Corps, Recruiting Officers of the United States Army, and of Local and District Boards and Medical Advisory Boards Under the Selective Service Regulations."

For the boards it is issued by the Provost Marshal-General's Office. For the camp surgeons, it will be issued by the office of the Adjutant-General of the Army, with perhaps some trifling changes as to procedure to govern Army camp surgeons; but the identical standards will be used. In other words, the edition for the Army issued through the Adjutant-General's Office will be identical in the statement of reasons for rejection and acceptance which are to govern boards; and when that goes out generally, which will be in a few days, we shall then have removed the greatest reason for the lack of uniformity. At present I am glad to say that although under the first draft physical rejections by the boards, plus physical rejections at the camp, ran up to 38 per cent., now, under the statistics which we have today, the total rejections by the boards, plus the rejections at camp, will not run over 30 per cent. Under the old regulations, if a man was not physically qualified for general military service, he was rejected. There were only two classes, men fit for military service and men unfit for general military service. There was no middle ground at all. The grouping here in this book is the same as in Form 64. Group A, men physically fit for general military service; Group B, remediable deferred group.

And let me warn you now: There have been some mistakes made, and abuses must occur while we are dealing with millions of men and with thousands and tens of thousands of men administering the law. Do not ever make the mistake of sending a man to camp, no matter what sort of a call there is, who is in the remediable Group B, unless you get a specific order to send those men forward to be remedied at a place that has been designated by the Surgeon-General.

Then we have Group C men, qualified for special or limited military service, and Group D, those totally rejected.

Now, I want to say that the men in the deferred remediable group, plus the men in the special and limited military service group, plus the men totally rejected and put in Class D, do not aggregate more than 29 per cent. of all the registrants now being examined. And the men who are being held for special or limited military service form the other 10 per cent. of them.

We have today in Class 1 nearly 250,000 men qualified for special or limited military service who, under the old regulations, would have gone into the discard.

There is another thing that the boards ought to be particularly careful about in qualifying or grouping men for special or limited military service, and that is that they must not only find that they are suffering with a defect which cannot be remedied and which disqualifies them for general military service, though it does not disqualify them for special or limited military service, but they must be satisfied that notwithstanding the man's defect, he is successfully following in civil life some occupation which might be useful in the Army. Not only that, but they should be extremely careful to enter on the record the identical occupation which he is qualified to follow.

For example, if you find a man who has lost one or two fingers, which would disqualify him for general military service—of course, not remediable, because you cannot replace his fingers—but you find that man is and has been for four or five years an expert telephone switchboard installer, or something of that sort, then you put that man down as qualified for special and limited military service as a wire man or switchboard installer.

You have another man who may be totally blind in one eye, and the sight of the other eye perfect. You may find that he has been perfectly successful as a telegraph operator, or in some other capacity. You hold him in that special class, and name the particular capacity in which he is available. This is an important thing, so that when we send a call for men, and we need men in these special capacities, we shall know that we have got 250,000 men from which we can select maybe nearly all of them to fill up these places which must be filled in the Army. If you enlist or induct a thousand men and send them to a camp or post, a proportion of those men, notwithstanding they are soldiers, have to do certain things which do not require the physical capacity of a man who has to carry his knapsack and rifle; and it is to fill the places of men of that sort that we can use these special and limited service men; and we have saved 250,000 of them who would have gone into the discard.

We hope that by the uniform application of the new rules there will be a still smaller percentage of men lost on account of physical rejections.

Mr. Taylor spoke of the enormous amount of free dental work done in Rochester, N. Y. It is a great conception. It fits men not only for military life, but also for civil life afterward.

RECONSTRUCTION WORK

Colonel Billings, now transferred from our office to the office of the Surgeon-General, has been put at the head of what is going to be the greatest work in this country; that is, the reconstruction of our wounded when they come back from France. In the meantime the intention is to attempt a remedy, a reconstruction, of thousands and hundreds of thousands of men of draft age in this country, if possible, and I perhaps will not be revealing any official secrets when I say that in my opinion Colonel Billings, before the time is reached when his force will be occupied in reconstructing our men coming back from France, will be reconstructing and remedying some of these men in the deferred remediable group, so that we shall recall these men, and make them fit.

MARYLAND DOING RECONSTRUCTION WORK

I want to say this, too: States are going ahead, many of them, and doing this remediable work. I think the first state to begin it was Maryland. I believe the Medical Aide from Maryland is here today. I hope he is. I understand that the state authorities, in conjunction with the Medical Aide and the boards, are now, in the State of Maryland, actually doing work of throwing the hospitals open and remedying many of these men put into the deferred remediable group. That is going to be followed in the other states; so that we shall have the state authorities, the county and municipal authorities who will be working hand in hand with the Surgeon-General's Office, preparing many of these men for service. But remember, you have got nothing to do for these men until you get a specific order to send a man of the deferred remediable group to a certain place designated by the Surgeon-General to be remedied.

DENTAL ASSISTANCE

Let me tell you what the dentists have done: The National Dental Association—I forget just the association's name—began several months ago to get the promise of all the dentists of the country, especially those who belong to the Association, to do free dental work for men who have been called; and up to date they have performed 300,000 dental operations; they have remedied 300,000 men who needed dental work done before they went to camp.

You are engaged in a gigantic task. It is hard to conceive what this task is. It is hard to visualize it. Think that one of the lower strata of the pyramid is composed of more than 15,000 members of Local and District Boards. Think of the enormous personnel actively doing work in classifying these men as to availability, and grouping them as to their physical qualifications. But you cannot stop there. Do you know that outside of the medical members of the Local and District Boards there are 20,000 physicians of this country working with Local and District Boards as examining physicians and as members of Medical Advisory Boards, besides the 20,000 that have already gone into the Army? Do you realize that there are more than 15,000 permanent members of Legal Advisory Boards, three to every Local Board, and that the associate members, called in to do the work when the necessity requires throughout the classification period, number more than 90,000 lawyers in this country helping the Local Boards? They have not responded any better than the medical profession has. I am a lawyer myself, but I take my hat off to the doctors.

Do you know we have 3,000,000 men under arms today and that the draft boards of this country have sent to camp 1,600,000 of these men? The other 1,400,000 are men who are enlisted in the National Guard, Regular Army, the Navy and the Marine Corps. And I want to tell you something else: Sixty per cent. of those 1,400,000 who are now in the Regular Army, National Guard, Navy and the Marine Corps came from your registration lists, and most of them went after you classified them and examined them and found them available for military duty and physically qualified for general military service; so that the draft boards of this country have sent under arms two and a half million men. The other half million are the men, a few of whom are over 31, and the others who are under 21. Do not get pessimistic, and do not be disappointed because the recent registration did not reach a million men. There is only one answer to it, and that is that there were two or three hundred thousand young men of the age of 21 years who voluntarily enlisted in the last twelve months.

I know that I do not have to appeal to your patriotism. You have shown that. You have shown that you realize that there is nothing worth while in human life today except to win this war, because if we do not win it there will not be anything worth while for any of us after it is over.

General Crowder said to me as I left Washington, and I realize the truth of it: "You cannot and I cannot say to these men what ought to be said to them; neither you nor I, nor any human tongue can ever express the gratitude which not only the Provost Marshal-General's Office but the whole American nation owes to these men who have labored faithfully and without compensation." The Local Boards and the District Boards have been paid nothing but a nominal compensation, not with any idea on the part of the government that it is real compensation; and many who are able have declined to receive any. And when you go to the nine or ten thousand members of the Medical Advisory Boards, you know well that they not only receive no compensation, but they furnish material, and frequently furnish for the use of the boards the offices for which they pay rent. So that it is useless to try to describe the gigantic task that has been done or the debt of gratitude which is due to these men for what they have done.

DISCUSSION

The Work of the Dental Profession

Dr. Charles F. Ash, New York, said: Prior to entry of the United States into the great war, the dental profession conceived the idea to make fit those men who were joining the Army and entering through the recruiting stations, believing, as we did then, that before long the United States would be, of course, one of the Allies. At the time we entered the war there were less than 6,000 dentists in the organization. We got the assistance of the Surgeon-General's Office to promulgate a plan whereby we were to ask the members of the profession to join the league, and we asked each man who joined the league and who was willing to give his service to give one hour a day and furnish the material to make dentally fit those men who became registered, and who were fitted for general military service.

We have today, out of a membership of about 45,000 dentists in the United States, over 15,000 dentists who have joined this league, and are giving service of one hour a day and material.

Up to May 1, we had recorded 236,115 operations. When I say "recorded" I mean we had the individual history of those cases, the name, the board number, and what the operation was, signed by the man who had the operation.

June 1, we had 336,931 operations recorded, showing an increase of over 100,000 operations during the month of May. In addition to that I know we have done at least 150,000 operations of which there was no record kept. So that we are safe in saying that over 500,000 operations were performed by the dental profession since September, 1917.

We are the infant member of the medical profession, and as such we should observe proper modesty, and we are glad to do so; but we are imbued with the idea that we are in this war to a successful finish, no matter how long it may take. The dental profession is satisfied that it is going to try to do its bit. We want to ask the cooperation of the members of the medical boards. If you will give us an opportunity to get the names of the registrants certified for general military service, we will be extremely grateful to you.

Rejected Men at Camp Logan, Texas

Major J. N. Hall, Camp Logan, Texas, said: I was glad to hear the report of the conditions at Camp Grant. I was the chairman of the board at Camp Logan, Texas, for the surgeon's certificates of disability to whom came these men who were sick. I entirely agree with Colonel Phelan in his remark that the men sent must have been the poor ones. We received 4,000 of these men, and in a short time we sent back three solid trainloads, 1,500 of these men, because of various disabilities. There is no need in the world of letting men come in with such defects as we found in these men. We found cases of arthritis and old tuberculous joints. Twenty-six men had such diseases of the eye as anopia. Of the 3,225 men examined all did not come from the draft, but in part were the regular Guard division, the Regulars in the camp, and also the draft men sent in. I have had 50,000 men pass before me, and I feel I ought to say something about them. There were eighteen with ankylosed joint; there were 164 with defective mental development; 179 cases of various deformities, from an absence of the pectoralis major muscles to absence of fingers and toes. We had a man who could not hold a pencil in his fingers. There were men with tuberculous spines; twenty men with fingers off so that they could not hold a gun in their right hand, and many that had no right forefinger; 250 hernias were operated on and the men returned to service. In that particular, I wish to dissent from the view expressed here today by one of the speakers. We had a dozen men with six toes, and many thrown out because they would not have the extra toe amputated.

(To be continued)

Therapeutics

FRENCH METHODS IN THE TREATMENT OF EPIDEMIC MENINGITIS

In view of the continued presence of epidemic meningitis in both military and civil communities in many different parts of the country, an especially keen interest is now felt in the successful treatment of this much feared disease. It may therefore be of value at this time to review briefly certain phases of the treatment of epidemic meningitis as practiced in France and described in detail by Dopter in his valuable little book.[1]

INTRASPINAL INJECTION OF ANTIMENINGITIS SERUM

In France, as elsewhere, it is regarded as essential that antimeningitis serum should be brought in direct contact with the lesions and with the cocci that produce them, which means that in practically all cases of meningococcus infection the serum must be introduced into the subarachnoid space. Of course, cases of meningococcemia without meningitis require intravenous injections of serum, and in the earliest stages of meningococcus infection and meningitis, intravenous injections are being urged by Herrick. Local meningococcus processes outside of the nervous system, for example, pleuritis, arthritis and corneal ulcer, should be treated by direct application of antimeningococcus serum.

For lumbar puncture Dopter recommends the recumbent position on the side at the edge of the bed, with the thighs strongly flexed on the abdomen and the head on the chest. The space between the fourth and fifth lumbar vertebrae is located by drawing a line from one iliac crest to the other, this line passing across the upper limit of the space. The needle is introduced in the median line in a slightly upward direction, and cerebrospinal fluid allowed to escape, as a rule to an extent somewhat larger than the amount of serum to be injected. The serum is warmed to 38 C. (100.4 F.) and injected slowly but continuously. After the injection the patient should be placed so that the pelvis is elevated and the head and chest lowered for two or three hours, in order that the serum more readily may reach upper regions of the subarachnoid space, especially the part about the optic chiasm which is nearly always most severely involved. Before injecting the serum the spinal canal may be washed out with warm sterile salt solution, as much salt solution being used each time as the quantity of cerebrospinal fluid originally withdrawn; Aubertin and Chabanier believe that this procedure is better than injection of serum only.

In the adult it is recommended that the quantity of serum injected at one time should not be less than 20 c.c.; in grave cases large quantities are indicated; 10 c.c. is regarded as insufficient under all circumstances; even in nurslings, it is necessary to inject from 15 to 20 c.c. and sometimes 30 c.c. From these statements we learn that in France, as in this country and elsewhere, antimeningitis serum is not yet standardized in such manner that the dose can be stated in definite units; as the matter now stands, the physician must use what he believes to be the most potent serum obtainable in maximum quantities.

A single injection even of a large quantity is rarely sufficient to arrest the infection completely; as the serum rapidly passes into the general circulation, remaining in contact with the lesions only a short time, the improvement after the first injection usually is only transitory, and in a day or two the condition becomes worse again and new injections must be given. Hence Dopter advises that as a rule the injections be repeated daily for three or four days. If the symptoms in the meantime become worse, two injections a day may be given, provided there are no indications that the serum is not being absorbed.

IMPORTANCE OF REPEATED EXAMINATIONS OF CEREBROSPINAL FLUID

After a series of injections, the symptoms in most cases subside and the outlook appears good, but Dopter specially emphasizes that the symptoms are not the most reliable guide, and that the best indications as to the progress of the case are obtained from a careful study of the cerebrospinal fluid. Whatever the general condition of the patient may be, if the fluid shows leukocytes and meningococci, the meningitic process is still active and new injections of serum are necessary. It may happen that after injections of serum all symptoms subside to reappear suddenly, the temperature rising again, with headache and stiffness of the neck. This may mean either a reawakening of the meningitis or certain serotoxic phenomena discussed a little later. If it concerns a true meningitic recidivation, the fluid is turbid and contains leukocytes and cocci, and of course more serum is in order; if it concerns the second possibility the fluid may be clear, perhaps amber colored, and without meningococci, and in this case no injections are indicated. Netter advises that in all cases lumbar puncture should be made from five to seven days after the first injection, as one then sometimes, so to speak, may surprise the enemy as it is preparing for a new attack. Dopter says to watch the patient with needle in hand and the eye at the microscope, and continue the injections so long as the meningococcus is present. It may be necessary to puncture and inject serum from as many as eight to twelve times, and to give from 150 to 250 c.c. of serum before success is attained.

When a physician sees a patient with the symptoms of cerebrospinal meningitis, a lumbar puncture should be made at once to determine whether the cerebrospinal fluid is clear or clouded. The fluid should be centrifugated and smears examined with respect to cells and bacteria. If the fluid is clear and does not contain any abnormal elements, the idea of meningitis must be put aside at least for the time being. But if the fluid, whether clouded or clear, contains polymorphonuclear leukocytes and bacteria, some form of meningitis is present. If the bacteria present are clearly recognizable as streptococci or pneumococci or bacilli, the meningitis would not seem to be due to the meningococcus; but if the smears contain intracellular or extracellular cocci, shaped like coffee beans, and not taking the Gram stain, the case may be regarded as one of epidemic meningitis, and now it would be highly imprudent to wait two or three days for complete bacteriologic identification by means of culture and agglutination before injecting the serum, because the patient then would lose the great benefit of early injection of serum. In case a most careful examination of smears fails to reveal any bacteria at the same time as numerous leukocytes are found to be present, experience has shown that the meningococcus nearly always is the cause of the infection. In the presence of an epidemic, injection of serum should not be delayed under any circumstances if the symptoms point to cerebrospinal meningitis. When it is impossible to examine the fluid bacteriologically, serum should be injected and the injection repeated the next day; if the symptoms subside, one should wait two or three days and then give a third injection; but if the symptoms appear to tend to persist, injection should be made again in from twenty-four to thirty-six hours.

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[1] Dopter: Diagnostic et traitement de la méningite cérébro-spinale, Paris, 1918.

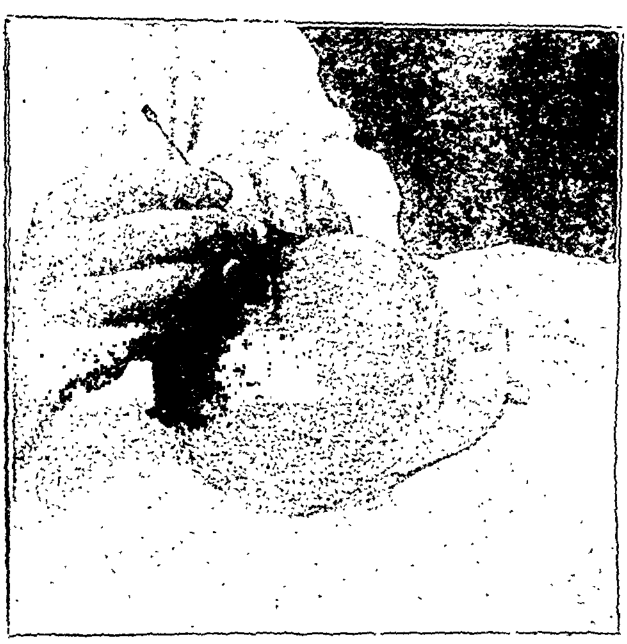

Fig. 1.—Ventricular puncture followed by injection of serum.

MENINGEAL IRRITATION FROM SERUM—"SERUM MENINGITIS"

Besides the well known phenomena of serum disease, intraspinal injection of horse serum sometimes appears to produce symptoms that suggest an aggravation of the meningitis. Dopter sketches the course of events in such cases somewhat as follows: A patient receives several injections of serum, and the symptoms subside; but a few days later, usually about the seventh to the ninth day after the first injection, headache, stiffness of the neck, vomiting, etc., may reappear; lumbar puncture is made and serum perhaps injected again, and the headache and pain in the back increase with dyspnea and rise in temperature only to disappear again after from twelve to twenty-four hours or thereabouts. These phenomena, sometimes intensified, may come on regularly after each new injection of serum, but the spinal fluid remains clear; leukocytes may be present, but these are well preserved, whereas in meningococcus meningitis they usually are degenerated, and meningococci are absent. These symptoms are associated often with cutaneous eruptions and joint phenomena. The most reasonable explanation of these meningitic manifestations is that they are due to mechanical and toxic effects of reactions leading to the formation of precipitate in the cerebrospinal fluid. We know that specific precipitins for horse serum develop in the blood of persons injected with antidiphtheria (horse) serum, and the cerebrospinal fluid of patients injected intraspinally with antimeningitis serum may form precipitates when mixed with the serum outside the body. It consequently is possible that precipitates may result in two ways: (1) from the action of the antimeningitis serum on the meningococcal proteins in the cerebrospinal fluid, or (2) from the action of precipitins on the proteins of the antimeningitis serum, the precipitins in this case having passed into the cerebrospinal fluid from the blood of the patient.

CAUSES OF FAILURE OF SERUM TREATMENT

According to Dopter, serum treatment of meningitis by French physicians gives a marked reduction not only in the death rate, but also in the duration and severity of the attack, and especially in the number of calamitous sequels (deafness, blindness and paralyses of various sorts). In discussing the failures of the serum treatment of meningitis, Dopter points out that the death rate is highest under 2 years; that chronic diseases and conditions of lowered resistance in general also increase the death rate; that in the fulminant attack, which may end in death after a few hours, there is little chance of success; that sometimes the attack at first is so mild that for some days the patient may continue his usual work to fall in a sudden coma and die after a few hours; and that epidemic meningitis may be associated with grave septicemia as shown by petechial and purpuric eruptions with or without internal complications such as pneumonia, pericarditis, etc., and in this group the death rate is high. Here, especially, prompt intravenous injections of antimeningitis serum in large doses are indicated.

Like all forms of serum therapy, the antimeningitis serum is most effective when given early; the longer after the onset serum is injected, the less its lifesaving effect; in the earliest stages, exudate is just forming; but later, the meninges are covered with a dense fibrinopurulent exudate in the depths of which the meningococci can hardly be reached by the serum, these changes being usually most marked at the base of the brain, and it is evident that the serum cannot possibly have the same local effect in the later stages of the attack as at the beginning. All statistics agree in showing much more favorable results early in the disease than later. Dopter states that early in the war, meningitic patients were sent to the rear before they were injected with serum, and during this time the death rate varied from 45 to 55 per cent.; but from the day when it was made possible to inject the serum more promptly, the death rate fell to about 15 per cent.—a most striking demonstration of the profound influence exercised by the time of injection.

It is now hardly necessary to remark that subcutaneous injections are not effective—the serum must be injected into the cerebrospinal space as the rule, and in sufficient quantities, and the injections repeated according to the indications in the individual case, special care being taken always not to stop too soon. It may happen that the serum is injected in such a way that it accumulates in a subdural cavity without reaching the subarachnoid space proper, and that on subsequent punctures this serum is withdrawn and new serum injected, the serum at no time coming in direct contact with the infected tissues. Another cause of failure may be mixed infection with staphylococci, streptococci, influenza bacilli, pneumococci, tubercle bacilli or other bacteria. Of course, antimeningitis serum is without effect in meningitis due wholly to some other microbe than the meningococcus. Cases do occur in which the meningococcus becomes associated with some one or other of the bacteria mentioned, and in such cases the serum treatment may destroy the meningococcus but have no action on the associated bacteria. Cases have recently been described (Netter, Mathers) in which the meningococcus and pneumococcus were associated, and in such cases, in which the prognosis is always bad, double serum treatment should be tried.

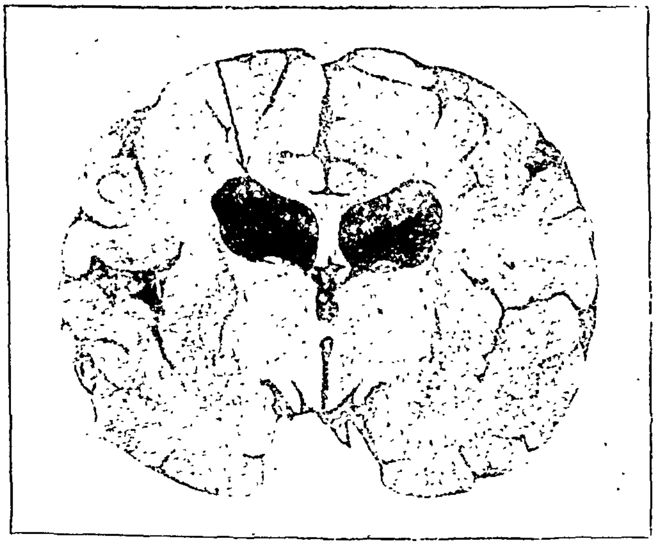

Fig. 2.—Section revealing dilatation of the ventricles. The arrow shows the course of the needle.

Further causes of failure may be peculiarities of the lesions in the central nervous system. Usually the lesions are most pronounced at the base of the brain, but in some cases in the spinal canal. These regions are not equally accessible to the serum as usually introduced, as the serum may not reach readily the cerebral regions, especially when the quantity injected is not large. Dopter says that as a rule the patients that present cerebral symptoms with delirium, etc., resist the action of the serum more than others. Then there may be meningococcal foci outside of the meninges as, for instance, abscesses, large or small, either subpial or deeper. Instances are described of death from meningitis treated with serum, in which the meninges were found perfectly normal after death, there being, however, abscesses in the brain. Sometimes, when the disease is prolonged, conditions develop that prevent the serum from reaching all parts of the meninges. Partitions dividing the subarachnoid space into independent cavities may form; thus the spinal canal may become shut off from the brain cavity, so that serum introduced by lumbar puncture cannot reach the surfaces of the brain, an effect that may be produced by masses of exudate in the region of the bulb. The spinal cavity may be partitioned, as in the case described by Cantas, in which he obtained only 2 cm. of fluid by lumbar puncture, and the injection of serum encountered considerable resistance; here cervical punctures were made, followed by injection of serum, and recovery ensued. When high puncture is being made, the patient should lie on the side with the back bent, and the needle should be introduced in the space between the sixth and seventh cervical vertebrae. Normally, the subarachnoid space communicates freely with the ventricles of the brain; in the usual form of meningitis it is the subarachnoid space that is the seat of infection, now easily reached by serum introduced by lumbar puncture; but sometimes the infection invades the ventricles and causes ependymitis, and in this case the paths of communication between the ventricles and the subarachnoid space may become more or less blocked so that serum injected in the usual way cannot reach the ventricles at all. In such cases also the membranes may be found normal after death while the ventricles are dilated and filled with clouded, purulent fluid.

Speaking generally, the symptoms in such cases under the usual serum treatment at first improve; the cerebrospinal fluid becomes clear; but soon a remission occurs which resists further treatment, while the cerebrospinal fluid may be practically normal, but scanty. Here the injection into the ventricles after death of a solution of some dye may not result in any coloration of the cerebrospinal fluid, showing that the communications are interrupted, and failure of serum treatment as usually practiced seems easily explained. Sometimes the main passages are blocked, but minute fissures remain open through which meningococci may find their way from the ventricles and maintain a meningeal inflammation. In France the opinion seems to be growing that most of the protracted cases of epidemic meningitis are of this walled-in type.

TREATMENT OF MENINGOCOCCUS EPENDYMITIS AND WALLED-IN MENINGITIS

As it is essential that antimeningococcus serum must come into direct contact with the meningococci, it is necessary in cases like these just outlined to inject the serum directly into the ventricles and other cavities. Cushing and Sladen appear to have been the first to do this; they withdrew the fluid in the ventricle and replaced it with an equal quantity of serum. Since then this procedure has been repeated in some cases with success, and now it must be regarded as the duty of the physician who undertakes the treatment of patients with epidemic meningitis to be prepared to puncture and inject the ventricles in cases of blockade. In infants, puncture may be made on a line with the external angle of the anterior fontanel about 2.5 cm. from the median line, the needle passing from above downward and a little inward at an angle of about 20 degrees for from 2 to 4 cm. when the ventricle is reached. Dopter recommends that from 30 to 60 c.c. of fluid be withdrawn and from 20 to 30 c.c. of serum injected, great pains being taken that the direction of the needle is not changed before the commencement of the injection. In older children and in adults, puncture must be preceded by trephining.

Three routes are available, the superior or frontal, the lateral or temporal, and the posterior. The superior route is preferred by Dopter; a small, external opening is made at a point 3 cm. in front of the bregma and from 2.5 to 3 cm. away from the median line, and a needle, from 7 to 10 cm. long and 7 or 8 mm. in diameter, is introduced obliquely from above downward and inward at an angle of from 15 to 18 degrees. At a depth of about 4 cm., fluid generally appears; sometimes it may be necessary to aspirate. The fluid should be allowed to run out, but not longer than while the patient seems perfectly well; the needle being maintained carefully in its place, a quantity of serum is injected slowly to the extent of about two thirds of the fluid withdrawn. This is a harmless procedure which has been followed by recovery in some apparently hopeless cases; but the true merits of the method are difficult to determine because so far it has been applied only in very grave, seemingly hopeless cases, and usually late in the disease. Dopter advises that this treatment should be used more freely, and that the injections should be repeated. He says that it must be borne in mind that in some cases both lateral ventricles should be punctured.

The situation established by closure of the ventricles being a most grave one, it should be met by a definite line of conduct, not timidly or blindly. The indications may be thus outlined: Usually the meningeal symptoms improve after intraspinal serum treatment. The cerebrospinal fluid becomes nearly normal; but in a few days the fever rises again, the headache increases, the patient becomes somnolent, perhaps delirious, the reflexes are reduced, and lumbar puncture may yield a fluid which is clear or almost clear and free from meningococci. Sometimes the fluid is a little yellowish, as if the serum injected had not been absorbed, and the fluid may be under but little pressure and scanty; sometimes one observes amaurosis, and there may be such signs of increased intracranial pressures as papillary congestion and contraction of the pupils. In spite of further injections of serum the general condition becomes aggravated, the headache increases and emaciation with muscular atrophy and contractures develops. The process should not be allowed to come to such extremes as this if it can be avoided. The earliest suspicious symptoms should prepare the physician for prompt action; more particularly rapid aggravation after a period of calm following injections of serum, persistence of symptoms in spite of improvement in the cerebrospinal fluid, which is yellow and under low pressure, increase of headache, and convulsions, if a little more serum is injected than cerebrospinal fluid withdrawn. It is true that none of these symptoms are pathognomonic. They may be imitated closely in the so-called serum meningitis; the symptoms in this case, however, soon subside, especially after lumbar puncture, but not in the other.

It is only by careful consideration of all the signs and symptoms that the existence of meningococcus ependymitis with blockade may be suspected or the passing of a meningeal process into a meningoventricular recognized. In the nursling the diagnosis is aided by tension of the fontanel. The diagnosis is more difficult when the phenomena of meningeal and ventricular involvement are present from the beginning; here no improvement follows serum treatment, except possibly in the cerebrospinal fluid. It seems evident that the early recognition and direct treatment of ventriculomeningitis with blockade will save life.

When the brain cavity as a whole has become separated from the spinal, Dopter urges introduction of the serum directly about the base of the brain. The route mentioned for this purpose is the sphenoidal fissure (*la fente sphenoïdale*), which is reached by a trochar entered just below the supra-orbital notch and passed along the orbital vault. Fluid is withdrawn and serum injected. Cazamian has used this method in three cases, and found it not difficult; two of the patients were moribund and died, but in the third case, in which the patient also was desperately ill, and two injections were given, one on the right side and the other on the left, recovery took place.

When closure is multiple so that many cavities are formed, more than one special method of treatment would be required, for example, puncture and injection of ventricles as well as at the base of the brain by the sphenoidal route. The difficult task in such cases is the diagnosis. In all such cases the condition of the spinal fluid below the occlusion must be carefully determined from time to time, as reinfection from above may take place, requiring new spinal injections.

This summary of Dopter's directions for the treatment of protracted, walled-in cases of epidemic meningitis brings into the foreground the special need of examination after death of the central nervous system of such patients. By careful study of the symptoms and course of the attack followed by a thorough anatomic examination, valuable lessons will be learned in treatment.

Health of English Schoolchildren.—In its comment on the annual report for 1916 of Sir George Newman, president of the Board of Education, the *British Medical Journal* (Oct. 6, 1917), says that the war more than anything else has brought home to the public the conception of the child as a primary national asset, and quotes the president as saying that no investment and no national economy can compare in results with the care of the rising generation. According to the *British Medical Journal's* analysis of the report, "the records of 1916 show all too much ill health, disability and defect of mind and body. Uncleanliness, malnutrition and mental backwardness debar tens of thousands of children from reaping proper advantage from the educational system provided by the country. Disease takes even heavier toll of the six million children in attendance at school. Probably half the whole number need dental treatment, and not less than half a million need it urgently, while a further half million are so defective in eyesight as to be unable to take reasonable advantage of their lessons. Another quarter of a million are seriously handicapped by diseases of the ear, throat and lymphatic glands." It is believed that the situation is no better at present; but the only hope of bettering it, according to Sir George Newman, is in systematic and continuous attention. The machinery for this is already provided, but in some instances it is insufficiently applied, or it is misapplied, or it is ineffectual on account of failure to see its importance, or owing to a sense of false economy or even parsimony. In order to secure the full value of school medical service, there should be periodic direct medical and dental supervision and follow-up; undernourishment should be overcome; medical treatment should be made available for all; well ventilated or open air classrooms should be provided; daily, organized, appropriate physical exercise should be taken; children of school age should be employed for profit only under approved conditions, and school environment and means of education should in no instance exert unfavorable or injurious influence on the health, growth and development of the child.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

CHLORINE-SODA AMPOULES.—Composed of a sealed glass tube stated to contain liquid chlorine (over 99 per cent. pure) 4.8 Gm. and a sealed glass tube stated to contain monohydrated sodium carbonate 21.3 Gm. and yielding, when the contents of the tubes are dissolved in 1,000 Cc. of water, a solution similar in composition to Neutral Solution of Chlorinated Soda.

To prepare the solution the contents of the tube of monohydrated sodium carbonate are placed in a bottle having a capacity of about 2,500 Cc. and dissolved in 1,000 Cc. water. The tube containing the liquid chlorine is suspended from a rubber stopper and is inserted into the bottle and the stopper firmly secured. The large bottle (after covering with a cloth) is shaken to break the chlorine tube. The contents of the bottle (without releasing the stopper) are then shaken for two minutes or longer. The solution, freed from particles of glass by decantation or filtration, is then ready for use, or its available chlorine may previously be checked by titration.

Actions, Uses and Dosage.—See Neutral Solution of Chlorinated Soda (New and Nonofficial Remedies, 1918, p. 154).

Manufactured by Johnson and Johnson, New Brunswick, N. J. U. S. patent applied for. No U. S. trademark.

The finished solution contains from 0.45 to 0.50 per cent. sodium hypochlorite. The available chlorine content is determined by titrating 10 Cc. in the presence of an excess of potassium iodide and acetic acid, with tenth-normal sodium thiosulphate solution. For this titration 12.0 to 13.4 Cc. of tenth-normal sodium thiosulphate solution are required.

To determine if the solution contains an excess of alkali a small quantity of phenolphthalein is mixed by rotation with some of the solution contained in a beaker. No red color should be produced.

CHLORIN-SODA AMPOULES

Report of the Council on Pharmacy and Chemistry

The report of the Association's Chemical Laboratory which appears below was submitted to the Council by a referee. The Council endorsed the report and authorized its publication. The Council also voted to accept Chlorin-soda Ampoules for New and Nonofficial Remedies.

W. A. Puckner, Secretary.

THE EXAMINATION OF CHLORIN-SODA AMPOULES

Report of the A. M. A. Chemical Laboratory

H. D. Dakin, in conjunction with A. Carrel and M. Daufresne, has introduced the so-called "Neutral Solution of Chlorinated Soda," or "Dakin's Solution," different standards and modes of preparation having been described. It is essentially a solution containing from 0.45 to 0.50 per cent. sodium hypochlorite, in a hypertonic solution of sodium chlorid and sodium carbonate and sodium bicarbonate. To prepare the solution, as they describe, requires that the available chlorin content of the chlorinated lime used be known, and that the available chlorin content of the finished solution be checked by titration. To obviate this, various preparations have been placed on the market, claiming to yield, when made according to direction, a solution having the correct strength of hypochlorite and to be "neutral" to phenolphthalein.

Johnson and Johnson offer "Chlorin-soda Ampoules" composed of (A), a sealed glass tube stated to contain 4.8 gm. liquid chlorin having a purity of "approximately over 99 per cent.," and (B), a sealed glass tube stated to contain 21.3 gm. monohydrated sodium carbonate U. S. P. The contents of "B" are placed in a 2.5 liter bottle, and dissolved in 1 liter of water. Tube "A," containing the liquid chlorin, is suspended from the inserted rubber stopper. The large bottle is then vigorously shaken, breaking the chlorin ampule.

Some of the claims made for the product are:

"The Johnson and Johnson method in a few seconds gives the Carrel-Dakin antiseptic solution of standard strength of between 0.45 per cent. and 0.50 per cent. of sodium hypochlorite, free from caustic alkali.

"All settling, decantation and filtering to eliminate lime sludge is avoided; the solution is exact and definite; all necessity for, and the trouble of an analytical test is obviated.

"The Carrel-Dakin solution resulting from this method is perfectly clear and ready for immediate use.

"The method is thus at once adaptable to hospital and field use, as well as to ordinary office practice."

"It is not necessary to make analysis of the solution made up from liquid chlorin by the Johnson and Johnson method, but for those who wish to check up the strength we state that it must contain between 0.45 per cent. and 0.50 per cent. sodium hypochlorite and that this is determined by titrating 10 c.c., in the presence of an excess of potassium iodide and acetic acid, with tenth-normal sodium hyposulphite and that the amount of this hyposulphite solution necessary ranges between 12.0 c.c. and 13.4 c.c.

"The test for caustic alkalinity, as prescribed, consists in throwing some powdered phenolphthalein upon the surface of some of the solution in a beaker and twirling the beaker to mix it. No red color should be produced."

One original package containing three ampules each of chlorin and of "Soda Salts" was sent to the Council by Johnson and Johnson, and another original package was purchased on the open market.

The liquid chlorin was brown, and was contained in colorless hard glass ampules about 7 inches long and ⅜ inch in diameter. The following quantitative determinations were made:

Chlorin Ampule.—The chlorin was allowed to escape from one tube by opening the pointed end, with due precautions, by heating. The loss in weight of the ampule was 4.600 gm. chlorin. A very small yellow residue remained in the tube.

Sodium Carbonate Ampules.—The weight of the contents of four "soda" ampules was 21.7, 21.5, 21.6 and 21.5 gm., respectively; average, 21.5 gm.

By titration (*a*) 2.6336 gm. required 41.60 c.c. normal hydrochloric acid solution, equivalent to 97.98 per cent. monohydrated sodium carbonate; (*b*) 2.2295 gm. required 35.90 c.c. normal hydrochloric acid solution, equivalent to 99.70 per cent. monohydrated sodium carbonate; average, 98.9 per cent.

Sodium Hypochlorite Solution.—The directions given by Johnson and Johnson were followed in preparing the hypochlorite solutions. The titrations were also carried out according to the method described by Johnson and Johnson (essentially the U. S. P. assay method for Solution of Chlorinated Soda).

(A) The chlorin tube broke near the middle, developing pressure, and some chlorin escaped: (*a*) 10 c.c. of the solution required 9.88 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.37 per cent. sodium hypochlorite; (*b*) 10 c.c. of the solution required 9.88 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.37 per cent. sodium hypochlorite.

(B) In preparing this sample, the chlorin tube also broke above the level of the water. As the stopper of the bottle was wired down no chlorin could escape at once. Yet when the stopper was taken out, after the bottle had been shaken for about one minute, the strong smell denoted that some uncombined chlorin had escaped: (*a*) 10 c.c. required 10.35 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.38 per cent. sodium hypochlorite; (*b*) 10 c.c. required 10.16 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.38 per cent. sodium hypochlorite.

(C) In preparing this sample, the chlorin tube broke near the lower end. After shaking the contents two minutes, no free chlorin escaped, when the stopper was released: (*a*) 10 c.c. of the solution required 13.3 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.49 per cent. sodium hypochlorite; (*b*) 10 c.c. required 13.3 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.49 per cent. sodium hypochlorite.

(D) The procedure was the same as C and no chlorin escaped: (*a*) 10 c.c. required 12.8 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite; (*b*) 10 c.c. required 12.8 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite.

(E) The solution was prepared as above, and after shaking from one and one-half to two minutes, the stopper was released when chlorin escaped: (*a*) 10 c.c. required 12.8 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite; (*b*) 10 c.c. required 12.8 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite.

(F) This tube could not be broken when vigorously shaken inside of the large bottle. It was therefore removed, cleaned and dried, and the chlorin content determined as described above.

Stability of Solution after Forty-Eight Hours.—Solutions D and E were allowed to remain near a window on dark days for forty-eight hours. In solution D the strength of sodium hypochlorite was 0.46 per cent. In solution E there was no perceptible decrease.

Phenolphthalein Test.—All of the solutions gave no color with powdered phenolphthalein, as described by Dakin, although they did color an alcoholic phenolphthalein solution momentarily before it was destroyed.

DISCUSSION

If loss of chlorin is guarded against, Johnson and Johnson Chlorin-soda Ampoules will give a solution of the strength described by them. To insure this, the stopper should be wired down or otherwise secured firmly and the bottle shaken for at least two minutes after the chlorin ampule has been broken. As the chlorin is under considerable pressure, the ampules when broken, especially if the sealed end is short, are often greatly shattered so that due precaution should be taken to filter off the glass particles. The chlorin tubes would break easier, more surely and with less shattering of glass and less pressure, if the sealed end was either more uniformly drawn out to a longer and somewhat smaller point, or so modified that the breaking would occur at the narrow tip. (With regard to this, Johnson and Johnson write that precautions have been taken to draw out the point of the chlorin tube longer and finer, so that no trouble, on this account, will occur in the future.) As Johnson and Johnson state that the chlorin contained in the ampules has a purity of over 99 per cent., it would be a valuable contribution if they would publish purity tests for the chlorin.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 6, 1918

THE EFFECTS OF REDUCED OXIDATION

Forty years have elapsed since Paul Bert, in 1878, offered the first proof that the symptoms and dangers of low barometric pressure depend on diminished oxygen pressure, and consequent insufficient oxygen content in the blood. There are other conditions than barometric pressure, however, that also affect the capacity of the living cells to carry out their customary processes of oxidation. Local circulatory alterations may enhance or retard the usual respiratory exchanges in the tissues in such a way as to bring about more or less profound alterations in the temporary make-up of the cells. Impairment of oxidation, therefore, is not always directly attributable to actual oxygen deficiency in the larger environment of the organism.

In the majority of cases in which the effects of oxygen want have been studied, the symptoms investigated were those associated with grosser physiologic processes. The finer analysis that observes the enforced changes within the living cells has less often been the way of research. The interpretation of the results of cellular changes is always particularly difficult because of the many factors at play. Cells not only require oxygen and food, but also produce carbon dioxid and other decomposition products. Cause and effect in the momentary status of the protoplasm may thus easily become the subject of debate.

Recently undertaken experiments by Martin, Loevenhart and Bunting[1] at the University of Wisconsin were planned to ascertain the morphologic changes in the tissues when a single factor in the chemical environment was changed. In some cases a decrease in the oxygen of the respired air was made the sole factor of change; in others the oxygen was kept constant while the carbon dioxid respired was greatly increased. The investigators assumed, to quote their own words, that they were dealing with results, direct or indirect, in one case of a reduced oxygen supply to the cells of the body, and in the other of an increased carbon dioxid content of the fluids and tissues of the body. The assumption, however, that the morphologic changes found could be produced in no other way is not made. Death of a cell may, for example, be produced by anemia or by bacterial toxins. A finer analysis might, however, show that in both instances a reduction of vital oxidation was the cause of the lesion; on the one hand through oxygen starvation, on the other through failure to utilize oxygen by interference with the cellular oxidases by the toxin.

In interpreting the lesions found in the Wisconsin experiments, it must be borne in mind that there was a consequent lessened intake of food and increased cardiorespiratory activity when the atmospheric conditions were varied in the way indicated. The compensatory efforts by the cardiorespiratory and hemopoietic systems were not adequate to meet the severe demand made by the lowered intake of oxygen in these trials. The outcome of the series, from the morphologic standpoint, after exposure to an atmosphere of low oxygen content, indicated a stimulation of the cardiorespiratory systems, an extension (hyperplasia) of red bone marrow, and probably a thyroid hyperplasia with the further production of hydropic and hyaline degeneration in the cells of the parenchymatous organs. An atmosphere of high carbon dioxid and normal oxygen content produces, however, a stimulation of the cardiorespiratory systems, but no marrow extension and, in the concentrations used, only slight hydropic degeneration in the parenchyma of the glandular organs. The results can be expressed in another way. The oxygen deficiency series gave evidence of lesions of two types, those of a progressive or hyperplastic variety, and those of a retrogressive or degenerative character, while in the carbon dioxid series, degenerative lesions alone were noted.

Martin, Loevenhart and Bunting point out a further interesting contrast in the location of the degenerative lesions within certain of the affected organs. Thus, in the oxygen deficiency experiments the lesion increases in intensity with increasing distance from the arterial blood supply. On the other hand, in the carbon dioxid experiments the lesions are in general more marked the nearer the tissues are to the arterial supply.

The hyperplasia of the bone marrow, that is, the extension of the red marrow throughout the cavities of the long bones, is not a new illustration of the adaptive response of the organism to oxygen deficiency.[2] Evidently the proliferation in these cells was not sufficient to compensate for the low content of oxygen available to the animals, so that degenerative processes nevertheless ensued. The opinion is advanced that oxygen deficiency should at least receive consideration as a cause, in the interpretation of lesions similar to those found under the conditions of the experiments cited. In explanation of the actual cellular changes observed — an increase in cell size, with an increase of its fluid content and apparently a decrease in the protoplasm resulting in so-called hydropic degeneration, vacuolar degeneration, or serous imbibition — various suggestions present themselves. The accumulation of incompletely oxidized constituents of an acid character presents the possibility, often proposed, that water may be more easily retained and lead to localized edema. This is the swelling of cells so often emphasized by Fischer and others.

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[1] Martin, H. G.; Loevenhart, A. S., and Bunting, C. H.: The Morphological Changes in the Tissues of the Rabbit as a Result of Reduced Oxidation, Jour. Exper. Med., 1918, **27**, 399.

[2] Dallwig, H. C.; Kolls, A. C., and Loevenhart, A. S.: Am. Jour. Physiol., 1915-1916, **39**, 77.

The theoretical aspects of the phenomena are not yet entirely clear; but in the interpretation of cellular lesions such as those here described, the factor of reduced oxidation must hereafter always be taken into account. Furthermore, the existence of thyroid hyperplasia in animals subjected to oxygen want is urged in favor of the theory that the thyroid influences internal oxidations. It is pointed out that vigorous thyroid activity increases oxidative metabolism in the body, and that after thyroidectomy degenerative changes have been noted widespread in parenchymatous organs. Thus, new observations may lead a long way.

THE RESISTANCE OF ANTINEURITIC VITAMINS TO ALKALIS AND HEAT

Among the current statements regarding the alleged instability of vitamins toward heat, some are apparently based on experiences gained by heating food substances under conditions of alkaline reaction. Thus it has been announced that bread containing baking soda loses its antineuritic properties during baking.[1] It has also been reported that extracts of rice polishings, which possess marked curative powers when administered to polyneuritic animals, lose this property rapidly when the extracts are made alkaline.[2] At a recent meeting of the American Society for Pharmacology and Experimental Therapeutics held in Minneapolis, Voegtlin and Lake[3] of the Hygienic Laboratory at Washington reported that typical polyneuritis can be produced with great regularity in certain mammals by an exclusive diet of lean beef that has been heated in alkaline reaction for three hours in an autoclave at 120 C. The symptoms evidently associated with typical myelin degeneration of certain peripheral nerves are relieved promptly by preparations of yeast, but not by administration of a protein like casein or by butter fat; hence the conclusion that the detrimental effect of the diet is associated with a lack of antineuritic vitamin rather than the need of the fat-soluble vitamin that facilitates growth, or of suitable undeteriorated protein.

Equally recent experiments of Osborne and Mendel[4] have shown that even unaltered meat (muscle tissue) is at best not very rich in the water-soluble vitamin, just as Cooper[5] had earlier found meat to be relatively inefficient as an antineuritic food. From this standpoint, the study of heating meat is not likely to throw light on possible loss of vitamins by heat as other investigations of foods naturally richer in vitamins might be. Accordingly, it is interesting to learn from a recent report by McCollum[6] at a meeting of the American Public Health Association that such sources of water-soluble vitamin as peas do not lose their growth-promoting properties by being heated in an autoclave at 15 pounds pressure for an hour. This procedure subjects the food to a temperature of between 112 and 115 C., and is probably a more severe heat treatment than is ever employed in the processing of canned goods.

Such information is timely before the advent of the next canning season. McCollum maintains that when cereals, fruits or vegetables are cooked with water, the reaction of the solution in contact with the food is probably never alkaline. Presumably, as he concludes, the physiologically active substance concerned with the prevention and relief of polyneuritis is sufficiently stable in either neutral or slightly acid aqueous solutions to make its destruction by heat a relatively slow process.

THE PATHOLOGY OF MERCURY POISONING

Intoxications produced by compounds of mercury either are acute in character with a rapid sequence of symptoms that are frequently, if not usually, fatal; or the outcome may be exhibited in considerably delayed manifestations of severe disease. The kidneys have usually received most attention in mercury poisoning because at some stage of the intoxication they are likely to show signs of abnormality in performance. Recently reported studies by MacNider[7] of the University of North Carolina at Chapel Hill throw new light on the acute pathologic condition induced by mercuric chlorid. A number of the animals that died from the intoxication within forty-eight hours after receiving the poison showed a clinical condition comparable with the state of shock and collapse that is observed in man from the use of a concentrated corrosive poison. Although all the subjects receiving mercury developed a gastro-enteritis, this varied widely in severity and duration, depending on conditions of administration and the onset of vomiting. In the group just referred to, however, the gastro-enteritis was always intense, so that necropsy disclosed the usual picture of an alimentary mucous membrane subjected to a strong corrosive. There seems little doubt that in individuals succumbing in this way, death occurs before sufficient time has elapsed for the development of the kidney injury. Sometimes a decided reduction in kidney output is observed even in these acutely fatal cases. The diminution, MacNider believes, is probably dependent on a disturbance in the functional capacity of the vascular mechanism of the kidney induced by the deflection of arterial blood away from the kidney to the splanchnic viscera. The absence of degenerative changes in the kidney and the presence of an intense congestion of the splanchnic vessels would apparently permit this deduction from the phenomena observed.

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[1] Voegtlin, C.: Bread as Food, Bull., U. S. P. H. S., 1916.

[2] Vedder, E. B., and Williams, R. R.: Philippine Jour. Sc., 1913, **8**, 175. Funk, C.: Biochem. Bull., 1915, **4**, 306. Voegtlin, C., and Sullivan, M. X.: Jour. Biol. Chem., 1916, **24**, 16.

[3] Voegtlin, C., and Lake, G. C.: Experimental Mammalian Polyneuritis Produced by a Diet Deficient in Antineuritic "Vitamine," Jour. Pharmacol. and Exper. Therap., 1918, **11**, 167.

[4] Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, I, Jour. Biol. Chem., 1917, **32**, 309.

[5] Cooper, E. A.: Jour. Hyg., 1912, **12**, 436; 1914, **14**, 12.

[6] McCollum, E. V.: Influence of Heat on Growth-Promoting Properties of Food, Am. Jour. Pub. Health, 1918, **8**, 191.

[7] MacNider, W. deB.: A Study of Acute Mercuric Chloride Intoxications in the Dog with Special Reference to the Kidney Injury, Jour. Exper. Med., 1918, **27**, 519.

Not all poisoned individuals escape acute nephropathy by dying before kidney damage results. When the severe mercury enteritis is averted or survived without death by shock, the delayed kidney injury so long regarded as characteristic puts in its appearance. The renal disintegration may occur with varying severity; it may even be delayed until there is recovery from the initial mercury enteritis. According to MacNider, however, this delayed kidney injury is not due to the action of mercury as such during its elimination by this organ. He points to the development of an acid intoxication as a conspicuous symptom of the action of mercuric chlorid. When it is severe, the animals may even become completely anuric. In this form of the delayed intoxication is found the severe type of kidney injury that has been characterized by an acute swelling and necrosis of the renal epithelium. All these animals have either gradually or acutely developed a severe type of acid intoxication. There has been a definite association between the development of an acid intoxication and the delayed kidney injury, and, furthermore, the animals that have shown the greatest swelling and necrosis of the renal epithelium have also shown the severest type of intoxication.

MacNider[8] has reported that in acute uranium intoxications the severity of the epithelial damage in the kidneys shows a correlation with the degree of acid intoxication induced by the metal, and, furthermore, that the damage to the kidney may in large measure be prevented by the intravenous injection of an alkaline solution. Our confidence in the prospect of curative procedures has, however, been severely shaken by the studies of Sansum[9] reported not long ago in The Journal. According to their indications, when once a fatal dose of mercury compounds is actually absorbed, therapeutic attempts are of no avail. Alleged successes are ascribed to their accidental efficiency in producing an expulsion of the poison or preventing its absorption.

MEDICAL EDUCATION IN ONTARIO

In dealing with practitioners of medical cults, the Province of Ontario has set an example which should be followed by the legislatures of the various states of this country. When the osteopaths began to clamor for legal recognition, instead of immediately granting the legislation asked for, the prime minister of Ontario appointed a special commission to make a thorough investigation in regard to the osteopaths and other cults; to inquire regarding their relation to medical education and licensure, and to suggest what action should be taken in regard to educational standards and laws for their regulation. Mr. Justice Frank E. Hodgins of the supreme court of Ontario was appointed in September, 1915, to make the investigation, and his report has just recently come from the press.

In this report Mr. Justice Hodgins states that he visited fourteen different cities of Canada and the United States and eighteen different institutions; he interviewed 234 people, and besides an abundance of direct communication, collected nearly 200 pamphlets bearing on all phases of the problem. The investigation went thoroughly into the origin, progress and practice of osteopathy, chiropractic, manotherapy, Christian science and other forms of healing, as well as of medical education, dentistry and nursing.

The report states that osteopathy in the United States is rapidly changing so that it may eventually conform to the educational qualifications required of physicians, and that it would not be wise for Ontario to make any concessions in its practice laws to provide for their licensure in that province. The report quotes several prominent osteopaths to show that osteopaths generally are no longer adhering to the narrow limitations fixed by the tenets of osteopathy, but are "anxious for classification on practically the same standard as that of regular physicians."

Of the chiropractic colleges, the report clearly brings out their grossly commercial character and, in regard to chiropractors, the commissioner states that "their repudiation of all modern scientific knowledge and methods is such that it would be impossible to recommend any way in which they could be allowed to practice and by which the public could be safeguarded. . . . Those who appeared before me saw no necessity for preparatory qualifications, ridiculed and repudiated diagnosis, bacteriology and chemistry, and admitted that a chiropractor acts in all cases on his cardinal principle without examination." He showed that there was a serious division in the ranks of chiropractors as to just what constituted the practice of chiropractic. The report quotes B. J. Palmer, who refers to his school as "the fountain head of chiropractic," as stating that "a chiropractor did not believe in bacteria and that bacteriology was the greatest of all gigantic farces ever invented for ignorance and incompetency, and as to analysis of blood and urine, he considered it of no value." The commissioner's conclusion is: "I cannot bring myself to the point of accepting, as part of our legalized medical provision for the sick, a system which denies the need of diagnosis, refers 95 per cent. of disease to one and the same cause, and turns its back resolutely on all modern medical scientific methods as being founded on nothing and unworthy even to be discussed."

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[8] MacNider, W. deB.: The Inhibition of the Toxicity of Uranium Nitrate by Sodium Carbonate, and the Protection of the Kidney Acutely Nephropathic from Uranium from the Toxic Action of an Anesthetic by Sodium Carbonate, Jour. Exper. Med., 1916, **23**, 171; The Efficiency of Various Diuretics in the Acutely Nephropathic Kidney, Protected and Unprotected by Sodium Carbonate, ibid., 1917, **24**, 19.

[9] Sansum, W. D.: The Principles of Treatment in Mercuric Chlorid Poisoning, The Journal A. M. A., March 23, 1918, p. 824.

In regard to Christian scientists, the report states: "Their rights should be carefully restricted to the bona fide exercise of the tenets of their religion, and they should possess no other or different right or immunity from that enjoyed by the clergyman or minister who is called in for the spiritual benefit of a member of his communion and whose ministrations often react beneficially on physical suffering." As to their relation to public health regulations, the report states: "Whether they see the patient or not, or whether they merely pray for him, if their efforts or doctrine really and in practice result in eliminating the regular practitioner, either because the patient desires it or because his friends do so, then the interests of public health throw on them the responsibility for any possible mistake in the nature of the disease. They should, therefore, conform to present or future health regulations and should, where they act for gain, be required to possess sufficient medical knowledge to recognize diseases pronounced by the health authorities to be communicable." Special safeguards in regard to contagious and infectious diseases are advocated in that "a penalty of fine or imprisonment, or both, sufficiently heavy to deter people from incurring it, should be imposed on any one practicing such religious tenets on or in reference to any person suffering from any disease dealt with as contagious or infectious in the Public Health Act, unless before such practice is begun notice in writing is given to the local health authorities of the presence of such disease." The report states that in the Province of Ontario the courts have already decided that those permitting the exercise of Christian science in respect to children, instead of providing tried medical assistance, are guilty of an offense against the Criminal Code. While the commissioner concedes that in certain types of mental errors which produce morbid conditions, or where the psychic effort of faith and hope is really helpful, Christian science may be a useful method of treatment; on the other hand, "its substitution for different and usual medical and surgical methods results in downright harm." The commissioner suggests that where practitioners of Christian science "come in contact with disease it seems hardly fair or reasonable . . . that there should not be required a sufficient knowledge of elementary medicine or of health and disease to prevent contagious and infectious diseases being unrecognized," and that "to insist on this knowledge would not take away the right of the individual to trust himself to the efficacy of the treatment, absent or present, which depends in large measure on the mental and spiritual. . . . Success in this practice may well depend on spiritual qualifications, but does not exclude the operation of common sense, based on knowledge, in discerning the disease from which the patient may be suffering. Either the Christian science practitioner must possess that information, or it must be supplied by some one else." The report concludes: "To allow attendance upon disease without any precaution against the effects of wrong diagnosis, or without sufficient education to discern whether the method proposed is properly applicable, is to put a premium on ignorance."

This report is of extreme importance and is worthy of careful study. It was made by a representative of the Provincial Government of Ontario, duly appointed for that purpose; it was made by one of the leading justices of Canada and, therefore, by a well qualified as well as a disinterested and unbiased investigator; it was clearly a thorough investigation of the medical cults in their relation to medical education, medical licensure and the public welfare, and its arguments are clear, logical and conclusive. The report will do much to rid the public of the bands of organized quackery represented by the various medical cults.

Current Comment

PHYSICAL EXAMINATIONS UNDER THE SELECTIVE SERVICE

One of the most practical series of meetings at the last annual session of the American Medical Association was that on physical examinations of registrants. The first instalment of the report of these meetings appears in this issue of THE JOURNAL. The account should be, and we have no doubt will prove to be, of great interest to every one of the 25,000 physicians directly connected with the work, either as members of the local, of the district appeal, or of the medical advisory boards. They should also be of interest to the camp surgeons to whom the men examined and passed by these boards are sent for final decision as to their physical fitness for military service. Most important, as pointed out by Dr. James B. Herrick, is the necessity of considering every man, not only from the standpoint of the specialist, but also wholly from the point of view as to whether or not he is of the type to make a good soldier. The address of Colonel Billings, as medical aide of the Provost-Marshal, traced the development of the various standards of physical examination which have guided physicians in this work; Mr. Graham Taylor brought out the civilian's point of view; and Col. James Phelan of Camp Grant, the difficulties which the camp surgeon encounters when he makes the final decision on the material sent to him by the selective service boards. Finally, Lieut.-Col. J. S. Easby-Smith, representing Provost Marshal-General Crowder, outlined in systematic manner the method of operation of the selective service law, the development of the regulations and the application of the regulations to individual cases. He brought to those present the thanks of the Provost-Marshal for the invaluable work of the medical profession which, as much as any other thing, has made the National Army possible. In next week's issue will appear numerous questions asked Colonel Easby-Smith by those in attendance, together with the lucid explanations and answers which he gave to the questions. These will aid many local, district appeal and advisory boards in making a decision which heretofore must have been made with considerable doubt and hesitancy. The review of these meetings indicates beyond question that in their scope, in their service and in their benefit to the country they were the most valuable feature of the scientific assembly.

MEDICAL SUPERVISION FOR INDUSTRIAL WORKERS

In pleading for the assurance of the efficiency and welfare of the girls and women who are entering on men's occupations as an inevitable consequence of the world war, Josephine Goldmark[1] of the National Consumers' League has emphasized three safeguards, namely, equal wages, additional legislation, and adequate medical supervision. With the rapidly increasing demand for physicians in connection with the enormous expansion of the Army and Navy, it might seem as if a call for greater medical effort among the civilian population were an ill timed if not ill advised scheme. We need to keep in mind, however, that the nation's great industrial army also must be maintained in a high degree of physical competence if the supreme effort is to be most successfully carried out. With the experience of the allied nations to guide us, America cannot afford to overlook this important feature. Competent medical supervision may do even more than facilitate the nation's self-preservation. Industrial clinics and all forms of medical supervision are inevitably agencies for public enlightenment in matters of hygiene. Moreover, they strike a blow at the insidious inroads of quackery and nostrum venders. Dr. Beatrice Webb, whose work for the Health of Munition Workers' Committee of the British Ministry of Munitions has given her unusual opportunities to become familiar with the life and health of the thousands of women and girls brought into the factories, has indicated some of the current tendencies. A widely spread and highly dangerous habit, she writes,[2] has arisen and is rapidly growing, of taking medicines, recommended by advertisement, by friends, or prescribed by physicians in bondage to the custom of seeing large numbers of patients in a short space of time. The spread of the habit of self-medication is attributed in part to the migration from rural to urban districts, where conditions are less favorable for right living. Dr. Webb points out, furthermore, that the ubiquitous advertisement of "patent medicines" cannot be without consequence. This can only be met by a counter campaign of education and, we believe, by the provision of suitable medical advisory opportunities. This is not synonymous with the prescription of drugs; rather, it means the establishment of suitable agencies which shall proclaim and teach right rules of living and help to correct remediable defects in accordance with modern medicine. When Voltaire described a physician as "a man who puts drugs of which he knows little into bodies of which he knows less," he doubtless delivered a reproach that was in part deserved. A prominent duty of the medical profession today should be to try to keep people well and to raise the general level of health. This brings us back to the original proposition: equal wages, additional legislation, and adequate medical supervision for the industrial workers.

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[1] Goldmark, Josephine: Some Considerations Affecting the Replacement of Men by Women Workers, Am. Jour. Pub. Health, 1918, **8**, 270.

[2] Webb, Beatrice: Health of Working Girls, London, 1917.

SOME EFFECTS OF AIR, LIGHT AND MOISTURE ON FOODS

It is commonly recognized that physical agencies such as enter into the environment of man may have an effect on the stability of foods. Heat, air, light and moisture have been held responsible for various sorts of deterioration or spoiling. This is true, in particular, in the case of edible oils. That they should undergo such changes is not strange when the behavior of the so-called drying oils used in the industries is taken into consideration. The changes which the latter undergo are incident to the absorption of oxygen whereby some of the constituents are converted from liquid to semisolid or hard products. The details of the changes in the stability of an edible fat—olive oil —have been ascertained in the course of prolonged observations at the Massachusetts Agricultural Experiment Station.[1] They have served to differentiate, in part, the effects of the individual possible factors. Thus it was found that light causes an active destruction of color and a slow production of rancidity. Air and light together cause the most active and effective destruction of color, active destruction of unsaturated acids, a rapid production of rancidity, and a slow but marked production of free fatty acids. Moisture caused the production of a precipitate, a turbid oil, and free fatty acids. It is evident, therefore that in order to preserve olive oils in their natural state, air, light and moisture should be excluded as completely as possible, particularly the combined action of air and light, which has proved exceedingly destructive. Such are the slow and subtle effects of unsuspected forces about us. Little wonder, then, if our crude drugs also deteriorate under similar circumstances from time to time.

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[1] Holland, E. B.; Reed, J. C., and Buckley, J. P.: Stability of Olive Oil, Jour. Agricultural Research, 1918, **13**, 353.

Medical Mobilization and the War

Field Medical Supply Depot of Army Desires to Purchase Rotary Microtomes

The Field Medical Supply Depot of the Army is in great need of rotary microtomes for use in making pathologic examinations of lung tissue in differentiating bronchopneumonia from lobar pneumonia at the various camps. Great difficulty has been encountered in obtaining these instruments since a number of the firms which formerly supplied them are now employed in manufacturing Signal Corps and ordnance material. The Medical Department therefore requests any one having a microtome to dispose of to communicate with Lieut.-Col. M. A. Reasoner, M. C., N. A., Field Medical Supply Depot, U. S. Army, 21 M Street N.E., Washington, D. C. It is desired to purchase the microtomes since the safe return of any lent to the department could not be vouched for.

Personnel of the Medical Department

For the week ending June 28, 1918, the personnel of the Medical Department of the Army included:

Medical Corps: 877, including 1 major-general, 65 colonels, 110 lieutenant-colonels, 298 majors and 403 lieutenants.

Medical Reserve Corps: 20,301, including 1,464 majors, 5,641 captains and 13,196 lieutenants. On active duty: 18,298, including 1,389 majors, 5,205 captains and 11,704 lieutenants.

Medical Corps, National Guard: 1,196, including 22 lieutenant-colonels, 265 majors, 254 captains and 655 lieutenants.

Medical Corps, National Army: 297, including 6 brigadier-generals, 67 colonels, 215 lieutenant-colonels, 8 majors and 1 captain.

The Discharges to date are:

Causes	Number M.R.C.	Number M.C.N.G.
Physical disability	702	54
Inaptitude	271	21
Other branches of service	573	72
Resignations	172	33
Domestic troubles	59	0
Needed by community	50	0
Deaths	88	6
Dismissals	12	4
Duty completed	1	0
No reasons given	14	0
	1942	190

MEDICAL FEATURES OF THE ARMY APPROPRIATION BILL

The Army Appropriation Bill passed the Senate, Saturday, June 29. It is now in the House with good prospects for its passage. The bill, although nominally for the purpose of providing the sum of over $12,000,000,000 for the Army expenses for the fiscal year of 1918, carried with it numerous riders, some of which are of the greatest importance to medical officers. Two we quote:

INCREASED RANK FOR MEDICAL OFFICERS

The most important amendment, perhaps, is that providing increased rank for medical officers. Elsewhere appears a quotation of the statements made in the Senate by Senators McKellar, Owen and Penrose relative to this amendment. The amendment reads:

> That the Medical Department of the Regular Army be, and is hereby, increased by one Assistant Surgeon-General, who shall have the rank of Major-General, and three Assistant Surgeons-General, who shall have the rank of Brigadier-General, all of whom shall be appointed from the Medical Corps of the Regular Army.
>
> That the President may nominate and appoint in the Medical Department of the National Army, by and with the advice and consent of the Senate, from the Medical Reserve Corps of the Regular Army, not to exceed four Major-Generals and eight Brigadier-Generals for each 1,000,000 officers and enlisted men of the entire National Army.
>
> That the commissioned officers of the Medical Corps of the Regular Army, none of whom shall have rank above that of Colonel, shall be proportionately distributed in the several grades as now provided by law.
>
> That the commissioned officers of the Medical Reserve Corps of the Regular Army, none of whom shall have rank above that of Colonel, shall be proportionately distributed in the several grades as now provided by law for the Medical Corps of the Navy.
>
> That the President may designate as "consultants" officers of either the Medical Corps or the Medical Reserve Corps and may relieve them as the interests of the service may require: Provided, That nothing in this act shall be held or construed so as to discharge any officer of the Regular Army or deprive him of a commission which he now holds therein.

CITIZENS BORN IN GERMANY OR AUSTRIA MAY BE COMMISSIONED

Another amendment provides "That American citizens of Austrian or German birth, or who were born in alien enemy territory who have passed the necessary examination and whose loyalty is unquestioned, may in the discretion of the Commander-in-Chief of the Army and Navy, be commissioned in the United States Army or Navy.

DISEASE CONDITIONS AMONG TROOPS

Week Ending June 21, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

		Last Week
All Troops	963.7	987.2
Divisional Camps	1,047.0	978.0
Cantonments	980.1	1044.4
Departmental and Other Troops	905.7	930.6

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

All Troops	39.8	38.3
Divisional Camps	40.0	35.4
Cantonments	49.9	44.6
Departmental and Other Troops	33.5	33.2

3. ANNUAL DEATH RATE PER 1,000 (disease only):

All Troops	2.9	3.31
Divisional Camps	3.88	2.9
Cantonments	3.44	4.89
Departmental and Other Troops	1.86	1.86

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING JUNE 21, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal		Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
				Total	New Infections						
Beauregard	1	7	31	88	3	...	..	..	1	1,022.3	43.2
Bowie	6	..	3	47	36	4	..	..	2	962.7	26.9
Cody	42	..	..	10	2	20	..	1	2	466.4	25.0
Doniphan	...	..	..	8	...	...	..	1	0	1,352.0	42.0
Fremont	5	..	2	8	3	13	..	..	1	663.6	36.1
Hancock	1	..	5	23	...	2	1	..	2	999.2	39.9
Kearny	...	..	..	3	...	2	..	..	2	578.5	25.8
Logan	5	..	..	64	56	1	..	..	1	5,996.5	282.4
MacArthur	2	..	..	...	...	6	..	2	2	1,018.4	37.2
McClellan	...	..	3	25	14	...	..	..	0	714.3	40.5
Sevier	7	1	15	79	4	24	1	..	2	1,319.5	61.0
Shelby	4	..	15	29	4	2	..	..	0	1,037.4	40.1
Sheridan	...	..	3	113	...	5	..	..	0	1,679.3	63.4
Wadsworth	4	.	4	171	3	19	1	..	4	2,254.3	53.2
Wheeler	3	..	..	31	4	...	..	..	3	767.7	25.7
Custer	2	..	1	51	2	9	..	1	1	423.5	17.9
Devens	5	..	..	30	8	19	1	1	3	574.5	37.8
Dix	1	..	1	66	66	6	1	..	1	890.5	33.9
Dodge	9	..	10	87	...	8	..	..	5	1,351.5	62.3
Funston	1	..	..	14	1	2	..	1	1	621.8	53.2
Gordon	12	..	4	190	1	14	4	..	9	1,525.0	59.5
Grant	3	..	..	21	...	13	..	2	3	397.5	17.5
Jackson	3	..	..	430	...	84	2	..	3	1,471.8	57.6
J. E. Johnston	3	..	1	39	22	11	..	1	0	1,228.3	33.4
Lee	3	..	..	65	...	37	..	..	1	600.0	67.5
Lewis	24	..	1	110	3	12	..	8	5	747.8	29.3
Meade	2	..	2	28	4	7	1	..	0	804.4	31.4
Pike	10	..	42	54	1	52	..	..	5	1,607.9	77.9
Sherman	2	..	4	145	...	3	..	..	1	1,320.5	66.0
Taylor	12	..	..	49	...	20	..	..	1	1,073.6	66.6
Travis	18	2	..	17	...	13	..	..	1	2,447.2	69.8
Upton	1	1	..	125	3	3	..	..	4	655.5	38.5
Northeastern Dept.	...	..	..	37	10	5	..	..	0	647.2	24.2
Eastern Dept.	11	..	9	181	81	25	..	..	3	803.7	20.7
Southeastern Dept.	...	..	..	54	32	8	..	..	1	1,011.9	37.6
Central Dept.	1	..	1	80	25	6	1	1	1	982.6	34.5
Southern Dept.	4	..	2	126	52	16	..	3	2	780.2	30.3
Western Dept.	4	1	..	72	29	8	1	9	4	932.2	29.6
Mili. Aeronautics	9	10	3	226	...	4	..	..	14	979.4	30.8
Alcatraz, D. B.	...	..	..	...	...	...	..	..	0	309.5	8.9
Leavenworth, D.B.	...	..	..	...	...	...	..	..	0	1,199.5	34.4
Columbus Bks.	...	..	..	12	4	...	..	..	0	684.9	37.3
Jefferson Bks.	2	..	..	71	4	21	..	..	0	1,748.6	99.5
Fort Logan	...	..	..	3	...	...	..	..	0	1,366.8	70.5
Fort McDowell	...	..	..	8	5	2	..	..	1	1,413.4	86.6
Fort Slocum	...	..	..	8	...	8	..	..	1	656.7	58.8
Fort Thomas	...	..	1	8	...	8	...	..	0	1,009.4	38.8
Augusta Arsenal	...	..	..	...	...	...	..	..	0	......	....
Edgewood Arsenal	...	..	..	1	1	...	..	..	2	586.8	52.6
Watertown Ars.	...	..	..	2	...	...	..	..	0	818.2	10.5
Springfield Arm.	...	..	..	...	...	...	..	..	0	509.8	9.8
Watervleit	...	..	..	...	...	...	..	..	0	1,607.2	37.7
Hoboken	7	1	4	232	21	10	4	3	2	927.7	42.7
Newport News	15	18	9	55	36	3	..	..	3	1,046.5	58.1
West Point	...	..	..	1	...	...	..	..	0	584.3	10.7
Fort Keogh	...	..	..	...	...	...	..	..	0	1,006.4	12.9
Greenleaf	...	1	1	25	...	6	..	2	1	956.9	53.9
War Pr. Bks. No. 1	...	..	..	...	...	...	..	..	0	1,320.6	12.7
Total	247	42	177	3,433	540	533	18	36	101	963.7	39.8

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending June 21, 1918	Departmental and Other Troops, Week Ending June 21, 1918	Divisional Camps, Week Ending June 21, 1918	Cantonments, Week Ending June 21, 1918	Expeditionary Forces, Week Ending June 13, 1918
Pneumonia	9.6	5.2	16.1	10.9	10.0
Dysentery	1.6	3.0	1.5	0.3	0.0
Malaria	6.9	2.9	15.7	6.5	1.2
Venereal	134.4	117.9	138.8	149.8	47.8
Paratyphoid	0.2	0.0	0.97	0.0	0.0
Typhoid	0.3	0.3	0.4	0.2	0.22
Measles	20.8	11.9	19.0	30.8	6.0
Meningitis	0.7	0.6	0.6	0.9	2.1
Scarlet fever	1.4	1.8	0.78	1.4	3.9

INCREASED RANK FOR MEDICAL OFFICERS

Remarks of United States Senators Preliminary to Passage of Amendment Granting Increased Rank

The following quotation from the *Congressional Record* gives the remarks made in the Senate preliminary to the passage of the amendment, quoted in another item, which grants increased rank to medical officers:

Mr. Penrose: Mr. President, while the bill was in the committee I had frequent occasion to confer with the Senator from Wyoming (Mr. Warren), the ranking minority member of the Military Affairs Committee, regarding legislation concerning the Medical Corps. I have not had an opportunity to examine the bill, and I should like to inquire from him what has been done in that respect.

Mr. Warren: Mr. President, the proposal to adopt for the Medical Corps of the Army the system governing the Medical Corps of the Navy was made to the Senate committee along with other suggestions, the one patterned after the naval system being the one most strongly urged. After long-continued hearings and investigation the subcommittee became satisfied, as the full committee later became satisfied, that the Medical Corps of the different branches of the Army should be divided. So far as the Regular Army is concerned, the legislation proposed simply adds one major-general and three brigadier-generals to the commissioned personnel of the Regular Army, and the remaining officers from colonels down may be increased from time to time according to the provisions of the present law and as the necessities of the case may require.

As to the National Army, the legislation provides that there may be, if the President so directs, four major-generals and eight brigadier-generals for every 1,000,000 officers and enlisted men in the service in the National Army. It provides also that the junior officers, from lieutenants up to and including colonels, may be in the same ratio as the law at present provides for the Navy.

Mr. Penrose: Mr. President, I only want to take this opportunity in passing to express my gratification that provision has been made for the several Medical Corps of the Army. It is an act of justice to a body of men whose services in modern warfare are invaluable, as is conceded everywhere. I believe that the medical profession throughout the United States will appreciate the efforts of the Senator from Tennessee (Mr. McKellar), who was chairman of the subcommittee, the Senator from Wyoming (Mr. Warren), and the other members of the Military Affairs Committee who have recommended the insertion of this provision in the bill. I sincerely hope that when the bill goes to conference the Senate conferees will insist on retaining this provision in the appropriation bill.

Mr. Warren: Mr. President, I think I ought to say, further, that we have been very liberal indeed with the Medical Corps of the National Army. We have in that corps the most distinguished surgeons and physicians of this country or perhaps of the world; and it has seemed as if we might be liberal, since during the war they are giving to the government their time and their experience, of course, at the end of the war these officers will be discharged, as are the enlisted men, except those who may be discharged in the meantime.

Now, as to the Regular Army, we ought not to interfere, and we have not in this legislation interfered, with what ought to be the rational flow of promotion in the service not only during the war but afterwards. This legislation, it is believed, will leave us at the end of the war with not too large a Medical Corps in the Regular Army, and the flow of promotions, while perhaps somewhat slower than heretofore, and of course very much slower than during the immediate past, will be normal, nevertheless.

Mr. McKellar: Mr. President, I wish to say in reference to this amendment rearranging the Medical Corps, and especially providing for the Medical Reserve Corps of the Army, that a good deal of labor has been devoted to this matter by the subcommittee and by the full committee. There are more than 20,000 doctors throughout this country who have volunteered to come into the service of the United States at this time. Doctors with large and remunerative practices have freely volunteered at, of course, very small pay in comparison with what they have heretofore made. No class of our citizens, I believe, have made greater sacrifices for the country than these gentlemen have voluntarily made. They have come forward with singular celerity, and have been most active in the performance of their duties and in preparing themselves for the duties that are before them. The best interests of our soldiers demand this legislation. It will give our Medical Corps such a position that it can enforce its reasonable rules to maintain the health of the Army and to restore the maimed and wounded. There was practically no legislation or very little legislation in regard to their service, and their commissions were limited for the most part to the rank of major and lesser grades.

There is no question that they are entitled to this legislation. So far as the general officers are concerned, they have even under this bill less representation than any other branch of the Army. I believe that, on the whole, this bill is satisfactory to them. I hope so, at any rate, because I believe, as I have said, that no class of our Army is more deserving of fair treatment than the officers of the Medical Reserve Corps who have come into the service of the United States. Some of the most noted physicians and surgeons of our land have not only come in recently, but have been in from the very beginning and are doing splendid work. It is a work that ought to be recognized by our country. This is the best that the committee could do; we believe that it is a proper provision and that it ought to be enacted into law.

We have taken much testimony and given much time and consideration to this measure. Senator Warren, Senator New, and myself feel that we have taken every precaution to subserve the best interests of our soldiers in framing the measure. Substantially we have followed the provisions of Senator Owen's bill, and we are informed that the provisions of this bill as amended and reported on this subject are entirely satisfactory to the entire medical profession. It is the first time in the history of our government when the medical fraternity has been recognized in a manner in keeping with the high purposes and the splendid efficiency of this noble profession.

Mr. Owen: Mr. President, I am gratified that the committee was able finally to agree upon such a provision as to give a substantial recognition both to the Medical Corps of the National Army and to the Medical Corps of the Regular Army. I have heretofore pointed out to the Senate the very great difference which prevailed between the American organization and the European organization. In Great Britain they have given very much more important recognition to the officers in the Medical Department, and the same thing is true with regard to France, Italy, Japan and Austria. The reason why they have given a greater dignity to these offices is because of the fact that the saving of human life is involved; that is the purpose of it and not merely to give dignity to worthy men.

While the amendment reported by the committee does not provide anything like as large a number relatively of higher ranking officers as the British, the French, the Italians, the Austrians, and the Germans have, still I believe it will be a very useful improvement, and I am glad to welcome it.

Mr. Penrose: Mr. President, I only want to say in conclusion and in passing that the provisions of this bill will at least lay the foundation for future legislation which may be required in the time to come. I agree with what the Senator from Tennessee (Mr. McKellar) has said. I do not think there is any element of our citizens who have made greater sacrifices than the members of the medical profession. A business man can come to Washington and devote all his time to the duties of some volunteer board and his business goes on, perhaps, under the management of those whom he leaves at home and his income is not curtailed, but the surgeon or physician who comes to Washington to serve on a volunteer board or to take a commission in very many cases sacrifices a very large professional income made by his own personal efforts, and when those efforts cease his income ceases. Therefore the sacrifice is all the greater.

I do not think, however, it is the money consideration which prompts this legislation; it is distinctly in the interest of greater efficiency in the several medical corps of the different branches of the Army. I know that in Pennsylvania—and the observation would apply, I take it, to any other state in the Union, but, of course, I am more familiar with my own state—the leading surgeons of Philadelphia and of Pittsburgh and throughout the state have contributed their services from a pure spirit of patriotism, and at almost a complete sacrifice of personal income and emolument. I know that this legislation will be commended throughout the country, and if it needs amplifying in the next appropriation bill I sincerely hope the Military Affairs Committee will see their way clear to build upon the foundation laid here today.

Mr. McKellar: Mr. President, if anything that I said suggested to my distinguished friend that our first purpose was not to secure greater efficiency in the Medical Corps of the Army, then I did not express myself as carefully as I should, because, of course, that was the primary purpose of the committee in dealing with this matter.

I want also to add, Mr. President, that the Medical Corps of the Regular Army has done splendid work, as our committee has found out, and they are entitled to very great credit for the manner in which they have organized the entire medical forces of our Army. I do not think any branch of our service has shown greater efficiency in preparing for its part in this great conflict, and I want to congratulate this department on its splendid work up to date, and to express the belief that the Medical Corps of both Regular and Reserve Establishments will make historic records in this conflict.

Mr. Penrose: Mr. President, I hope the Senator from Tennessee will not misunderstand me. I did not in the remotest way mean to suggest that he had intimated any consideration, except that of the loftiest patriotism, and I want to say here that if it had not been for him and his colleagues on the subcommittee, supported by the Senator from Oklahoma, who introduced one of the original bills, this legislation might have failed for lack of attention in the multitude of other matters pressing upon the consideration of Congress and the committees of Congress at the present time.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Beauregard, Alexandria, La., as assistant to camp surgeon, from Camp Logan, Major HENRY P. CARTER.

To Camp Bowie, Fort Worth, Texas, as camp surgeon, from Southern Department, Major JOHN C. INGOLD.

To Camp Dix, Wrightstown, N. J., *Mineola* and *Camp Upton, L. I., Otisville, Fort Ontario,* and *Fort Porter, N. Y.,* and *Camp Perry, Ohio,* to make sanitary inspections and on completion *to his proper station,* Lieut.-Col. FRANK W. WEED.

To Camp Gordon, Atlanta, Ga., as assistant to camp surgeon, from Walter Reed General Hospital, Major FREDERICK H. PETTERS.

To Camp Grant, Rockford, Ill., as assistant to camp surgeon, from Vancouver Barracks, Major CHARLES R. CASTLEN.

To Camp Lewis, American Lake, Washington, as camp surgeon, from Hawaii, Lieut.-Col. HERBERT C. GIBNER.

To Camp Logan, Houston, Texas, as camp surgeon, from Camp Bowie, Major JOHN A. BURKET.

To Cape May, N. J., for duty, and on completion *to his proper station,* Lieut.-Col. EDWIN C. ELLETT.

To Edgewood Arsenal, Bound Brook, N. J., for duty, and on completion *to his proper station,* Col. WILLIAM J. L. LYSTER.

To Gettysburg, Pa., for conference and on completion *to their proper stations,* Cols. PEARCE BAILEY, WARFIELD T. LONGCOPE, Lieut.-Col. NELSON M. BLACK.

To Hoboken, N. J., for sanitary inspection and on completion *to his proper station,* Col. ALBERT E. TRUBY.

To Mineola, L. I., N. Y., for duty, and on completion *to his proper station,* Col. THEODORE C. LYSTER.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. JAMES H. BURNS.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Meade, Annapolis Junction, Md., for duty, from Camp McClellan, Lieut. W. THEO. LANGLEY, Camp Hill.

To Camp Wadsworth, Spartanburg, S. C., for duty, Capt. LOCHLIN M. WINN, Birmingham.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. JOHN C. BRAGG, Birmingham.

To Camp Wheeler, Macon, Ga., base hospital, Lieuts. ALTO L. KELLY, STERLING C. WOOD, Birmingham.

To Cape May, N. J., base hospital, Lieut. HARVEY B. SEARCY, Tuscaloosa; from Camp Beauregard, Lieut. RUFUS JACKSON, Birmingham.

To Fort McPherson, Ga., for duty, Lieut. EMMITT C. SINIARD, Birmingham.

To Fort Oglethorpe for instruction, Capt. JOHN McP. LOWREY, Birmingham.

To report to the comanding officer, Southern Department, for duty, from Camp Travis, Major JAMES H. AGNEW, Mobile.

Arkansas

To report to the commanding general, Philippine Department, for duty, from Camp Lewis, Lieut. HENRY W. A. LEE, North Helèna.

California

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Lieut. DOLOS P. THURBER, San Francisco.

To Camp Custer, Battle Creek, Mich., base hospital, Major PERCIVAL G. WHITE, Los Angeles.

To Camp Dix, Wrightstown, N. J., for duty, from Hoboken, Lieut. CHARLES L. TRANTER, San Francisco.

To Camp Dodge, Des Moines, Ia., base hospital, Capt. VARD H. HULEN, San Francisco.

To Camp A. A. Humphreys, Accotink, Va., for temporary duty, from Fort Riley, Capt. JAMES R. REED, Pasadena.

To Camp Fremont, Palo Alto, Calif., base hospital, Lieut. RICHARD R. RONAN, Los Angeles.

To Camp Kearney, Linda Vista, Calif., as a member of the tuberculosis examining board, Capt. WILLIAM BARNHART, Los Angeles.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. WILLIAM T. ROTHWELL, Los Angeles. For duty, Capt. EDWARD VON ADELUNG, Oakland; Lieut. LAURENCE L. LINDSEY, Owensmouth; from Fort Riley, Lieut. BARTHOLOMEW GATTUCCIO, Davenport.

To San Francisco, Calif., Letterman General Hospital, for instruction, Lieut. JOHN SWANSCOTT, Los Angeles.

The following order has been revoked: *To Camp Dix,* Wrightstown, N. J., for duty, from Hoboken, Lieut. CHARLES L. TRANTER, San Francisco.

Canal Zone

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. HARRY D. EBERSOLE, Cristobal.

To report to the Governor of the Panama Canal, C. Z., for duty, Capt. FRAZER F. MONROE, Ancon; Lieut. WILLIAM V. LEVY, Cristobal.

Colorado

To Army Medical School for duty, Lieut. OMER H. GILLETT, Colorado Springs.

To Camp Lewis, American Lake, Wash., base hospital, from Camp Kearney, Capt. ALBERT W. METCALF, Henderson. For duty, Capt. HARRY L. RICHARDSON, Durango; from Fort Riley, Lieut. EARL W. KEMBLE, Golden.

To report by wire to the commanding general, Central Department, for asignment to duty, Lieut. CHARLES WAXHAM, Sugar City.

Connecticut

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Capt. FRANKLIN L. LAWTON, Hartford; from Camp Upton, Lieut. ANDREW J. JACKSON, Waterbury; from Fort McPherson, Lieut. RAYMOND H. RYDER, Waterbury.

To Fort Oglethorpe, base hospital, from Cape May, Capt. DOUGLAS J. ROBERTS, Bridgeport.

To Fort Warren, Mass., for duty, Lieut. CHARLES K. DEMING, New Haven.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. FRED F. ARMSTRONG, Ansonia.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. JULIAN L. BIRDSON, Hartford.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JOHN G. ADAM, Canaan.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Capt. ABRAHAM L. OSHANSKY, New Haven.

Resignation of Lieut. GEORGE P. CHENEY, New London, accepted.

District of Columbia

To Biltmore, N. C., for temporary duty, from Camp Lee, Major JAMES F. MITCHELL, Washington.

To Fort Oglethorpe for instruction, Capt. JAMES L. BOOTH, Washington.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. LESTER NEUMAN, Washington.

Georgia

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. HERBERT L. REYNOLDS, Atlanta; from Army Medical School, Lieuts. HARVEY W. SNYDER, Atlanta; ERNEST B. SAYE, Milledgeville.

To Camp Logan, Houston, Texas, base hospital, Lieut. HENRY M. McGEHEE, Talbotton.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. RUPERT H. STOVALL, Macon.

To Fort Myer, Va., for duty, from Fort Oglethorpe, Major ZACHARY S. COWAN, Atlanta.

To Fort Oglethorpe for instruction, Capt. JOHN E. TRAIN, Savannah; Lieuts. JOHN D. BLACKBURN, CARRELL M. WEST, Atlanta; EUGENE F. GRIFFITH, Eatonton; FRANK P. NORMAN, Greenville; GEORGE Y. MASSENBURG, Macon.

Idaho

To Camp Kearney, Linda Vista, Calif., base hospital, Lieut. EARL EAMES, Menan.

Illinois

To Camp Sherman, Chillicothe, Ohio, for duty, Capt. JOHN A. HALE, Alto Pass. With the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. GORDON E. HEIN, Chicago.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. JOHN R. POLLOCK, Nebo.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. WILLIAM C. WILLIAMS, Chicago.

To Fort Benjamin Harrison, Ind., base hospital, Lieuts. ROGER T. FARLEY, EDGAR T. FARLEY, Chicago. For duty, from West Lafayette, Lieut. FRANK H. DEANE, Humboldt. With examining the troops for tuberculosis, from New Hav ROBERT M. CARPENTER, St. Charles.

To Biltmore, N. C., for temporary duty, from Camp Lee, Major EVARTS A. GRAHAM, Chicago.

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Lieuts. CARL W. CLARK, THOMAS S. McCLANAHAN, WILLARD H. WATEROUS, RALPH G. WILLY, Chicago; from Fort Oglethorpe, Lieut. CLYDE D. GULICK, Urbana.

To Camp Doniphan, Fort Sill, Okla., base hospital, Capt. HARRY A. WARE, Chicago.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capts. HENRY M. VANHOOK, Mt. Pulaski; LOGAN O. HAMILTON, Roadhouse.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. RAY E. LOGAN, Galena. For duty, Capt. HENRY P. LANGHORST, Elmhurst.

To Camp Lee, Petersburg, Va., base hospital, from Fort Riley, Lieut. CARLETON A. HARKNESS, Chicago.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. GEORGE R. BLACKSTONE, Bushnell; ORRIS M. THOMPSON, LeRoy.

To Camp Meade, Annapolis Junction, Md., with the board examining the command for nervous and mental diseases, Lieut. PAUL J. EWERHARDT, Kankakee.

To Camp Pike, Little Rock, Ark., for duty, Lieuts. LEONARD B. GAPINSKI, EDWARD H. WARZEWSKI, Chicago.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. EARLE K. HALLOCK, Chicago.

To Cape May, N. J., base hospital, from Camp Grant, Major NORVAL H. PIERCE, Chicago.

To Fort Des Moines, Ia., base hospital, Lieut. FRANCIS L. FORAN, Chicago.

To Fort Oglethorpe for instruction, Lieut. HENRY S. EDSON, Chicago.

To New Haven, Conn., for duty, Lieut. EMERY H. DUFOUR, Chicago.

To Newport News, Va., for duty, from Army Medical School, Lieut. CARL FREUND, Chicago; from Fort Oglethorpe, Leut. KARL L. HAYES, Farmersville.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Upton, Lieut. FRED W. FIEDLER, Batchtown.

To report to the commanding general, central deparment, for duty, Capt. CHARLES ADAMS, Chicago.

To report to the commanding general, Philippine Department, for duty, from Camp Dodge, Lieut. SAMUEL L. THORPE, Clinton.

Resignation of Lieut. HARVEY L. LANGLOIS, Kankakee, accepted.

The following order has been revoked: *To Plattsburg Barracks, N. Y.*, for duty, from Lakewood, Major DANIEL A. K. STEELE, Chicago.

Indiana

To Camp Grant, Rockford, Ill., for duty, Lieut. HERBERT M. SENSENY, Fort Wayne.

To Camp Greene, Charlotte, N. C., as a member of the board examining the command for tuberculosis, from Camp Sheridan, Capt. AMZI W. HON, Indianapolis.

To Camp Jackson, Columbia, S. C., from Camp Sevier, Lieut. CHARLES F. VOIGT, New Albany.

To Camp Devens, Ayer, Mass., *for duty, from* Fort Oglethorpe, Lieut. CARL HENNING, Hanover.

To Camp Pike, Little Rock, Ark., for duty, Capts. ROBERT C. ROGERS, RODNEY D. SMITH, Bloomington; BEECHER J. TERRELL, Indianapolis; Lieut. FLOYD I. EICHER, Wakarusa.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. FRED C. DILLEY, Brazil.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Montgomery, Lieut. JULES L. BIERACH, Salem.

To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. LEE A. SALB, Jasper.

To Fort Des Moines, Iowa, base hospital, Capt. CARL W. McCAUGHEY, Greenfield.

To Fort McPherson, Ga., for temporary duty, Lieut. WILLIAM J. JOHNSON, Indianapolis.

To Fort Sam Houston, Texas, for duty, *from* Camp Jackson, Lieut. CHARLES E. WOODCOCK, Whiteland.

Iowa

To report by wire to the commanding general, central department, for assignment to duty, Lieut. MORTON LYON, DeWitt.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Zachary Taylor*, Louisville, Ky., base hospital, Capt. WILLIAM J. EGLOFF, Mason City.

To Rockeleller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Sevier*, Greenville, S. C., base hospital, Lieut. DEAN H. OSBORN, Monticello.

To Camp Dodge, Des *Moines, Iowa, for duty*, Capt. EDWARD D. MORRISON, Barnum; Lieut. WILLIAM E. ANSPACH, Colfax.

To Camp Pike, Little Rock, Ark., for duty, Capt. JOHN R. WALKER, Fort Madison.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Major HAROLD A. SPILMAN, Ottumwa.

To Colonia, N. J., for duty, from New York City, Lieut. JACOB J. SYBENGA, Pella.

To Fort Des Moines, Iowa, base hospital, Lieut. FREDERICK C. NILSSON, Laurens.

To Newport News, Va., for duty, from Army Medical School, Lieut. JOHN W. BILLINGSLEY, Monroe.

Kansas

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. WALTER P. STOLTENBERG, Kingsley.

To Camp Gordon, Atlanta, Ga., base hospital, from Army Medical School, Lieut. ROY W. LAYTON, Kansas City.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GUY R. McCREERY, Whiting.

Kentucky

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. WILLIAM T. LITTLE, Calvert.

To Camp Jackson, Columbia, S. C., for duty, Capts. SAMUEL L. BEARD, Shelleyvile; JOHN M. HACKLEY, Versailles.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Capt. AMPHLIAS O. SISK, Earlington.

To Camp Pike, Little Rock, Ark., for duty, Lieut. LELAND E. DASHIELL, Covington.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. DAVID H. COLEMAN, Harrodsburg.

To Rockefeller Institute for instruction in laboratory work, and *on* completion *to Army Medical School*, for duty, Lieut. STONEWALL J. SMOCK, Glasgow.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from Camp Sherman, Major JOSEPH G. SHERRILL, Louisville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JOHN T. PRICE, Harrodsburg.

Louisiana

To Camp Beauregard, Aexandria, La., base hospital, Lieut. VALENTINE H. FUCHS, New Orleans; from Camp Kelly, Lieut. JOSEPH M. HOUNTHA, New Orleans; from Camp Lee, Lieut. LOUIS A. HERBERT, New Orleans; from Camp Wadsworth, Lieut. JOHN SIGNORELLI, New Orleans; from Fort Riley, Lieut. WILLIAM O. CALLAWAY, New Orleans.

To Camp Devens, Ayer, Mass., for duty, from Watervliet, Lieut. WILLIAM McL. HAYES, New Orleans.

To Camp Dodge, Des Moines, Iowa, for duty, Lieut. JACOB M. BODENHEIMER, South Highlands.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN D. FRAZER, De Ridder.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Custer*, Battle Creek, Mich., base hospital, Major SAMUEL M. D. CLARK, New Orleans.

Maryland

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. CHARLES A. REIFSCHNEIDER, Baltimore; from Army Medical School, Lieut. RALPH S. STAUFFER, Hagerstown.

To Camp Shelby, Hattiesburg, Miss., as orthopedic surgeon, from Army Medical School, Lieut. DUMONT F. ELMENDORF, Baltimore.

To Fort McHenry, Md., for temporary duty, Lieut. JONATHAN E. BURNS, Baltimore.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. FRANCIS X. KEARNEY, Baltimore.

To Fort McPherson, Ga., for temporary duty, Lieut. WALTER H. WISHARD, Hagerstown.

To Newport News, Va., for duty, from Army Medical School, Lieuts. ROBERT S. CUNNINGHAM, ROBERT G. FULLER, BOWERS H. GROWT, Baltimore.

To Plattsburg Barracks, N. Y., for duty, Capt. HARRY L. WHITTLE, Baltimore.

To New York City, Neurological Institute, for inspection, and on completion *to his proper station*, Major CHARLES BAGLEY, Jr., Baltimore.

Massachusetts

To Camp A. A. Humphreys, Accotink, Va., base hospital, from Army Medical School, Lieut. RALPH H. SIMMONS, Fall River.

To Camp Crane, Allentown, Pa., for duty, from Army Medical School, Lieut. HAROLD F. BUDINGTON, Springfield.

To Camp Devens, Ayer, Mass., base hospital, Lieut. EDWARD A. ADAMS, Fitchburg. For duty, from Fort Oglethorpe, Lieut. CHARLES S. DOUCET, Lowell.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Upton, Lieut. HENRY E. ST. ANTONIO, Boston.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Zachary Taylor*, Louisville, Ky., base hospital, Lieut. CHARLES A. SALMON, Worcester.

To Biltmore, N. C., for temporary duty, from Camp Lee, Lieut. FRANKLIN A. STEVENS, Boston.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Army Medical School, Lieut. WILLIAM F. COTTING, Boston.

To Camp Jackson, Columbia, S. C., for duty, Capts. MORTIMER T. CAVANAUGH, Great Barrington; CHARLES A. HOLBROOK, Haverhill, BUTLER METZGER, Lynn.

To Camp Wheeler, Macon, Ga., base hospital, Lieuts. LOUIS STRAHLMANN, Boston; ALPHONSE F. BURRESKI, Brighton.

To Fort McPherson, Ga., for temporary duty, Lieut. JOSEPH M. LYNCH, Dorchester.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Williamsbridge, Capt. HAROLD A. JOHNSON, Lynn. Cornell Medical College, as instructor in military roentgenology, from Hoboken, *Major PERCY BROWN, Boston.* Neurological Institute for intensive training, Lieut. GEORGE VAN M. DEARBORN, Cambridge.

To report to the commanding general, Philippine Department, for duty, from Camp Lewis, Lieut. JAMES M. MURPHY, Palmer.

The following order has been revoked: *To Fort McPherson, Ga.*, for duty, Lieut. FREDERICK PARKER, Jr., Bedford.

Michigan

To Eagle Pass, Texas, for duty, and on completion *to his proper station*, from Leon Springs, Lieut. FREDERICK L. MORSE, Lake Odessa.

To Fort Oglethorpe for instruction, Lieuts. STANLEY A. STEALY, Charlotte; ALGERMON A. PALMER, Chelsea; JOHN W. GORDON, EDWARD D. KING, CLARENCE E. TRUESDELL, Detroit; ALBERT B. CLARK, Swartz Creek; from Camp Custer, Lieut. ARTHUR W. NEWITT, Detroit; from Fort Wayne, Mich., Major WILLIAM F. ENGLISH, Saginaw.

To Camp A. A. Humphreys, Accotink, Va., with the board examining the command for nervous and mental diseases, from *Fort Benjamin* Harrison, Major FREDERICK H. NEWBERRY, Detroit.

To Camp Doniphan, Fort Sill, Okla., base hospital, from Washington, Capt. MYRON S. GREGORY, Eureka.

To Camp Lee, Petersburg, Va., base hospital, from Camp Shelby, Capt. KENNETH F. MAXEY, Detroit.

To Camp Pike, Little Rock, Ark., for duty, Lieut. WILLIAM C. KOOLS, Holland.

To Lakewood, N. J., for duty, Lieut. BERNARD A. O'HORA, Detroit.

To report to the commanding general, Philippine Department, *for* duty, from Fort Logan H. Roots, Major FRANK SUGGS, Detroit.

Minnesota

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Capt. JOHN C. HARDING, St. Paul; Lieut. HERMAN C. BUMPUS, Jr., Rochester.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. DANIEL F. McCANN, Bemidji.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. FREDERICK BARRETT, Gilbert.

To Camp Pike, Little Rock, Ark., for duty, Capt. WILLIAM L. PALMER, Albert Lea.

To Fort Des Moines, Iowa, for duty, from Camp Grant, Capt. RALPH E. MORRIS, Minneapolis.

To Fort Sam Houston, Texas, for duty, from Fort Oglethorpe, Major EMIL S. GEIST, Minneapolis.

The following order has been revoked: *To Fort Sheridan, Ill.,* as orthopedic surgeon, from Fort Oglethorpe, Capt. JAMES A. McLAUGHLIN, Minneapolis.

Mississippi

To Fort McPherson, Ga., for duty, Lieut. MATTHEWS C. ARMSTRONG, Arm.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GEORGE J. MANCILL, Indianola.

Missouri

To Camp Sevier, Greenville, S. C., as orthopedic surgeon from Chicago, Lieut. HARRY F. P[illegible]

To Camp Zachary Tay[illegible] or duty, from Camp Dodge, Lieut. EVAN S. [illegible] City; from Camp Wadsworth, Lieut. QUITMAN U. NEWELL, St. Louis.

To Cape May, N. J., base hospital, from Camp Dodge, Capt. ELLIOTT K. DIXON, St. Louis; from Camp Lee, Lieut. JOHN W. STEWART, St. Louis.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. LURIN P. MACKLIN, St. Louis.

To Camp Dodge, Des Moines, Iowa, for duty, Capt. FRANK L. LOGG, Farmington; Lieut. HARRY S. UPSHAW, St. Louis.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. CHARLES A. BARNARD, Portage de Sioux.

To Camp Pike, Little Rock, Ark., for duty, Capts. CHARLES C. PRESNELL, Charleston; HERBERT C. POWERS, Joplin.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. CHARLES H. OZIAS, Kansas City.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieuts. HOWARD C. BRASHEAR, ROBERT M. CULLISON, GUSTAVE DAHMS, St. Louis; from Fort Riley, Lieut. RICHARD B. PLATTE, Kansas City.

To Hoboken, N. J., for duty, from New York City, Lieut. DUDLEY F. MACKEY, Clayton.

Montana

To Camp Dix, Wrightstown, N. J., base hospital, from Hoboken, Lieut. THOMAS B. SCOTT, Butte.

To Camp Dodge, Des Moines, for duty, from Jefferson Barracks, Lieut. HAROLD SCHWARTZ, Butte.

To San Francisco, Cal., for instruction, and on completion *to Camp Kearney,* Linda Vista, Calif., base hospital, Major RUDOLPH HORSKY, Helena.

Resignation of Major LEROY SOUTHMAYD, Great Falls, accepted.

The following order has been revoked: *To Camp Doniphan,* Fort Sill, Okla., from Camp Logan, Lieut. JOHN J. TOBINSKI, Missoula.

Nebraska

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Porter, Lieut. OSCAR E. COLEMAN, Ainsworth.

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Lieut. MARTIN R. BROMAN, Lincoln.

To Camp Pike, Little Rock, Ark., for duty, Lieut. WILLIAM SHEPHERD, Rulo.

Missouri

To Camp Sevier, Greenville, S. C., as orthopedic surgeon, from Chicago, Lieut. HARRY F. PARKER, Warrensburg.

Lieut. EVAN S. CONNELL, Kansas City; from Camp Wadsworth,

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Dodge,
Lieut. QUITMAN U. NEWELL, St. Louis.

To Cape May, N. J., base hospital, from Camp Dodge, Capt. ELLIOTT K. DIXON, St. Louis; from Camp Lee, Lieut. JOHN W. STEWART, St. Louis.

New Hampshire

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Major ROBERT J. GRAVES, Concord.

New Jersey

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from New York City, Lieut. ARTHUR J. GANLEY, Passaic.

To Camp Devens, Ayer, Mass., for duty, Lieut. RALPH N. ABELS, Jersey City; from Fort Oglethorpe, Lieut. JAMES F. TOMPKINS, Camden; HENRY H. TOMLIN, Wildwood.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Bowie, Capt. FRIEND B. GILPIN, Crawford.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. ALEXANDER REINGOLD, Hoboken.

To Camp Jackson, Columbia, S. C., base hospital, from Hoboken, Lieut. ARCHER C. BUSH, Verona.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. MARTIN B. FINNERAN, Jersey City.

To Fort McPherson, Ga., for temporary duty, Lieut. WALTER A. RELTER, Summit.

To Fort Oglethorpe for instruction, Lieut. HARRY L. ROGERS, Burlington.

New York

To Biltmore, N. C., for temporary duty, from Camp Lee, Capt. ALEXIS V. MOSCHOWITZ, New York.

To Camp Beauregard, Alexandria, La., base hospital, from Camp Greene, Lieut. JOHN B. D'ALBORA, Brooklyn.

To Camp Crane, Allentown, Pa., for duty, from Camp Dix, Lieut. GEORGE B. RANDALL, Albany.

To Camp Devens, Ayer, Mass., *Camp Gordon,* Atlanta, Ga., and *Camp Zachary Taylor,* Louisville, Ky., for inspection, and on completion *to his proper station,* from Camp Upton, Major RUSSELL LaF. CECIL, New York. Base hospital, Lieuts. HAROLD C. HAVILAND, Albany; MYRON A. THOMPSON, Buffalo; REUBEN STEINHOLZ, New York. For duty, from Army Medical School, Lieut. MICHAEL G. HEALY, New York; from Fort Oglethorpe, Lieut. ALBERT R. ELLISON, Buffalo.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. HOWARD C. JOHNSTON, Corinth; FRANK S. SCHOONOVER, New York.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capt. JOSEPH C. DEVRIES, Brooklyn. For duty, from Army Medical School, Lieut. FRANCIS E. WEATHERBY, New York.

To Camp Lee, Petersburg, Va., base hospital, Lieut. FREDERICK C. SCHREIBER, New York. For duty, from Army Medical School, Lieut. WALTER F. TOLSON, New York.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. HORACE E. AURINGER, New York.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. LEO. M. SACHS, Buffalo.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. RAYMOND G. BLOOD, Blackwell's Island.

To Fort Bliss, Texas, base hospital, from Washington, Capt. WILLIAM R. WOODBURY, Rochester.

To Fort McPherson, Ga., for duty, Lieuts. SAMUEL E. APPEL, Dover Plains; WARREN W. BELL, MAX HARRISON, New York; RALPH B. POST, Ravena; LEOPOLD SZERLIP, Rockaway Beach; FREEMAN S. O'BRIEN, Wappingers Falls.

To Fort Niagara, N. Y., for duty, Lieut. ADOLPH S. KATZMAN, Floral Park, L. I., N. Y.

To Fort Oglethorpe for instruction, from duty as an enlisted man, Lieut. FREDERICK WEINSTRAUB, Brooklyn.

To Fort Sam Houston, Texas, for duty, from Camp Joseph E. Johnston, Lieut. HAL McC. DAVISON, New York; from Camp Sherman, Lieut. ORVILLE H. RICHER, New York.

To Hoboken, N. J., base hospital, Lieut. HAROLD R. BROWN, New York; from Camp Upton, Lieut. ANTHONY W. M. MARINO, Brooklyn. For duty, from New York City, Capt. FREDERICK M. LAW, New York.

To Lakewood, N. J., for duty, Lieut. RANDOLPH WEST, New York.

To Mineola, L. I., N. Y., for duty, from Camp Lee, Major ARTHUR S. MOORE, Middletown. For duty, Capt. FRANK M. HALLOCK, New York.

To Newport News, Va., for duty, from Army Medical School, Lieut. PHILIP H. CLARKE, Brooklyn.

To New York City, Neurological Institute, for instruction, Lieut. JULIUS GOTTESMAN, New York.

To Plattsburg Barracks, N. Y., for duty, from Camp Lee, Capt. JAMES F. MUNSON, Sonyea; from New York, Lieut. HENRY, K. SCHNEIDER, New York; from the Surgeon-General's Office, Major RICHARD H. HUTCHINGS, Ogdensburg.

To Philadelphia, Pa., Medical Arts Building, for instruction, from New York, Capt. CHARLES E. E. PANNACI, Gloversville.

To report to the commanding general, Philippine Department, for duty, from Boston, Lieuts. ISIDOR GRAD, New York; JOHN F. HOLDEN, White Plains.

To report to the Governor, Panama Canal, C. Z., for duty, Capt. STANLEY D. GIFFEN, New York.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Cape May, N. J.,* for duty, from Camp Joseph E. Johnston, Capt. WALTER H. SANFORD, Kings Park. For instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. HARRY BAKWIN, New York.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Sherman,* Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Capts. JOHN R. HERRICK, Hempstead; DUDLEY S. CONLEY, New York. On completion *to Camp Custer,* Battle Creek, Mich., base hospital, from Fort Oglethorpe, Lieut. WILLIAM C. HANNON, New York.

To San Antonio, Texas, as orthopedic surgeon, from Army Medical School, Lieut. RAEBURN J. WHARTON, Brooklyn.

To Washington, D. C., for duty in the Surgeon-General's Office, from Newport News, Capt. HARRY PLOTZ, Brooklyn.

The following orders have been revoked: *To Camp Doniphan,* Fort Sill, Okla., from Fort Logan, Lieut. GEORGE W. BATT, Kennedy. *To Camp Jackson,* Columbia, S. C., base hospital, Lieuts. ABRAHAM KARDINGER, JEROME L. KOHN, New York. *To Fort Oglethorpe* for instruction, Lieut. ABRAHAM RAVICH, Brooklyn.

Resignation of Lieut. JACOB E. HODES, Brooklyn, accepted.

North Carolina

To Camp Beauregard, Alexandria, La., base hospital, Capt. PAUL H. RINGER, Asheville; PORTER P. VINSON, Davidson.

To Fort McPherson, Ga., base hospital, Capt. JAMES B. BULLITT, Chapel Hill.

Ohio

To Camp Grant, Rockford, Ill., for duty, from Hoboken, Lieut. GEORGE S. NUTT, Youngstown.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. EARL E. BAKER, Cincinnati.

To Camp Lee, Petersburg, Va., base hospital, Lieut. HARRY S. SHAMANSKY, Cincinnati. For duty, from Camp MacArthur, Lieut. JAMES A. BELYEA, Toledo.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. GEORGE L. CRISTY, Painesville; from Fort Oglethorpe, Lieuts. ROBERT C. VAN BUREN, Carey; ROSWELL W. COMSTOCK, Maumee.

To Fort Sam Houston, Texas, for duty, from Camp Shelby, Lieut. HENRY A. SPRINGER, Dayton.

To Fort Warren, Mass., for duty, Lieut. JOHN L. WEBB, Carbon Hill.

To Lakewood, N. J., for duty, from Camp Sherman, Major ROGER S. MORRIS, Cincinnati.

To Markleton, Pa., for duty, Capt. HENRY K. DUNHAM, Cincinnati.

To Army Medical School for instruction, Major ALLEN FREEMAN, Columbus.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. FRED C. HUNT, Girard; JOHN D. SIDDALL, Kalida; WALTER J. WEISER, Marion.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieuts. WILLIAM E. MASTER, Scio; FOREST C. HANEY, Woodsfield; JONAS E. KING, Youngstown.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. CHARLES L. MAXWELL, Columbus.

To Fort McPherson, Ga., for duty, Lieuts. CHARLES McC. BRAY, NEVIN C. MAYER, DAVID V. ROSENBERG, Cleveland.

To Fort Oglethorpe for instruction, Lieut. ELBER R. BRUBAKER, Springfield. For instruction in orthopedic surgery, from Army Medical School, Capt. ELMER A. KLEIN, Norwood.

To Hoboken, N. J., base hospital, Lieuts. ERIC R. TWACHTMAN, Cincinnati; ARCHIE D. WOODMANSEE, Washington Court House. For duty, from Camp Dix, Lieut. LOUIS A. MITCHELL, Newark; from Camp Meade, Lieut. DANIEL W. JONES, Columbus; from Fort Oglethorpe, Lieuts. ARCHIBALD A. SOUTHWICK, Cleveland; HARRY M. RAMBO, Janesville.

To Plattsburg Barracks, N. Y., for duty from Camp Gordon, Capt. ALFRED P. COLE, Cincinnati.

To Watervliet, N. Y., for duty, from Fort Oglethorpe, Capt. GEORGE E. GARWOOD, Colton.

Resignation of Lieut. CHARLES H. BAILEY, East Liverpool, accepted.

Oklahoma

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Sam Houston, Major ABRAHAM L. BLESH, Oklahoma City.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. HAROLD N. JUSTICE, Sapulpa.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieuts. CHARLES J. BRUNSON, Adamson; JOHN D. LEONARD, Strang.

To Camp Zachary Taylor, Louisville, [illegible]on, from Chicago, Lieut. EARL L. YEAKE[illegible]ty, from Colonia, N. J., Lieut. MARION M. [illegible]

To Camp Doniphan, Fort Sill, Okla., bas[illegible] C. TISDAL, Elk City.

To Camp Pike, Little Rock, Ark., for duty, Lieuts. ONIS FRANKLIN, Broken Arrow; BENJAMIN F. NEWLON, Ponca City.

To Fort Des Moines, Iowa, base hospital, Lieut. ROY L. PENDERGRAFT, Hollis.

To Newport News, Va., for duty, from Army Medical School, Lieut. DAVID A. GREGORY, Ardmore.

The following order has been revoked: *To San Francisco, Calif.*, for duty, from Chicago, Capt. FENTON M. SANGER, Oklahoma City.

Oregon

To Camp Lewis, American Lake,, Wash., as division tuberculosis specialist, Major RAY W. MATSON, Portland. For duty, Lieut. ROBERT L. WOOD, Amity; from Fort Riley, Lieut. HENRY Z. THARP, Dallas.

To Fort Leavenworth, Kan., for duty, Lieut. FRANK. R. MENNE, Portland.

Pennsylvania

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Jacksonville, Lieut. CLARENCE S. KURTZ, Malvern.

To Camp Kearney, Linda Vista, Calif., base hospital, from Camp Fremont, Lieut. FRANK E. SMITH, New Kensington.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ALBIN ROZPLOCH, Philadelphia. For duty, Lieut. ALVA H. GAVEN, Youngwood. From Camp Dix, Lieut. SNOWDEN K. HALL, Sharpsburg; from Fort Oglethorpe, Lieut. BOYD E. WILKINSON, Trevorton; from Williamsbridge, Lieut. WARREN T. O'HARA, New Kensington.

To Camp Meade, Annapolis Junction, Md., as a member of the board examining the command for nervous and mental diseases, Lieut. FREDERICK FRALEY, Lieuts. CARL F. BIGONEY, Lansdale; ABRAHAM J. BARON, JAMES H. BARTLEY, Jr., Philadelphia. Base hospital, Capt. GEORGE H. CROSS, Chester; from Army Medical School, Capt. WILLIAM H. BAILEY, Philadelphia. For duty, from Fort Oglethorpe, Lieut. LEON J. COMCHE, Waterman.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Lewis, Capt. HENRY B. INGLE, Philadelphia.

To Takoma Park, D. C., Bliss Electrical School, to make physical examinations and give medical attention to the drafted men to be enrolled at this institution, and on completion *to his proper station*, from Army Medical School, Lieut. WILLIAM F. PETERS, Philadelphia.

To Washington Barracks, for duty, from Washington, Capt. BENJAMIN H. PATTERSON, Wilkinsburg.

To Waynesville, N. C., for duty, from Camp Sevier, Capt. NORMAN R. GRAHAM, Sharpsburg.

To Army Medical School for instruction, Major ARTHUR P. HITCHENS, Glenolden.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. NATHAN ASHINKEY, Pittsburgh.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capt. HARRY H. THOMPSON, Philipsburg. For duty, from Army Medical School, Lieut. LEO T. MULLAHEY, Shenandoah.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieuts. GERANON N. GINSBERG, Philadelphia; ROBERT M. COCHRANE, Pittsburgh.

To Camp Wheeler, Ga., base hospital, Lieuts. GEORGE H. BLOOM, Ogontz; ABRAHAM BERNSTEIN, Philadelphia.

To Camp Zachary Taylor, Louisville, Ky., for duty, From Fort Oglethorpe, Lieut. BART J. SMITH, Windber.

To Fort Leavenworth, Kan., for duty, Lieut. OMER R. ETTER, Philadelphia.

To Fort McPherson, Ga., for temporary, duty, Lieuts. GUY P. ASPER, Chambersburg; WILLIAM J. BASLER, Harrisburg.

To Fort Oglethorpe base hospital, from Camp Devens, Capt. DANIEL M. HOYT, Philadelphia. For instruction, Major WILLIAM E. ASHTON, Philadelphia; Capts. ROY E. SLEPGY, Library; RICHARD P. SMITH, Philadelphia; Lieuts. BRUCE E. NEVIN, Mercersburg; from Philadelphia, Major EDWARD MARTIN, Philadelphia; Capt. WILLIAM H. FURNESS, Wallingford.

To Hoboken, N. J., for duty, from Camp Logan, Capt. WALTER L. HENDERSON, East McKeesport.

To Lakehurst, N. J., for duty, from southern department, Capt. EDWARD W. McCLOSKEY, Philadelphia.

To Lakewood, N. J., for duty, Lieut. JACOB W. MITCHELL, Pittsburgh.

T[illegible] Va., for duty, from Fort McPherson, Major EARL D. [illegible] *To Newport News* and *Camp Lee*, Petersburg, Va. [illegible] instruction, and on completion *to his proper station*, Major JAMES T. RUGH, Philadelphia.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp McClellan, Capt. ALBERT J. WINEBRAKE, Scranton.

To report to the commanding general, Philippine Department, for duty, from Fort Oglethorpe, Lieut. WM. C. MILLER, Warren.

Porto Rico

To Camp Las Casas, San Juan, P. R., for duty, from San Juan, Lieut. FRANCISCO J. M. HERNANDEZ, Juncas.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieuts. JUAN H. FONT, Barranquitas; AUGUSTINE R. LAUGIER, San Juan.

Rhode Island

To Camp Jackson, Columbia, S. C., for duty, Capt. FRANK M. ADAMS, Providence.

South Carolina

To Fort McPherson, Ga., for duty, Lieut. BENJAMIN O. WHITTEN, Columbia.

South Dakota

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Riley, Lieut. JOHN C. ROGERS, White Lake.

Tennessee

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Lieut. SALVADOR L. BOCCELLATO, Memphis.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. TATE B. COLLINS, Trezevant.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. JAMES H. HITE, Nashville.

To New Haven, Conn., for duty, Lieut. LEON T. STEM, Chattanooga.

To Newport News, Va., for duty, from Edgewood Arsenal, Lieut. FREDERICK W. LEE, Springfield.

Texas

To Camp Beauregard, Alexandria, La., base hospital, Capt. PETER SCARDINO, Houston.

To Camp Grant, Rockford, Ill., as assistant to camp surgeon, from Fort Oglethorpe, Major FREDERICK J. COMBE, San Antonio.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieuts. CLARENCE L. McCLELLAN, Farwell; MILES R. HASTINGS, Galveston.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. JOSEPH KOPECKY, El Campo.

To Fort Bliss, Texas, base hospital, Major FREDERICK O. WAAGE, El Paso.

To Fort McPherson, Ga., for duty, Lieut. EUGENE L. LAWRENCE, Thorndale.

To Newport News, Va., for duty, from Army Medical School, Lieuts. HUGH J. DAVIS, Austin; LEVY S. JOHNSON, Richmond.

To report to the c[illegible] Philippine Department, for duty, from Camp Kearne[illegible] E. NICHOLSON, Brenham; from Camp Lewis, Lieut. GREEN L. REA, Bryan.

Utah

To Fort Oglethorpe for instruction, Lieut. FRANCIS A. GOELTZ, Salt Lake City.

Virginia

To Camp Lee, Petersburg, Va., for duty, from Army Medical School, Lieut. [illegible] BERTSON, Jr., Staunton.

To [illegible], Texas, for duty, from Fort Oglethorpe, Lieut. [illegible]ENS, Lynchburg.

To Fort Oglethorpe for instruction, Lieut. PITT E. TUCKER, Buckingham.

To report to the commanding general, Philippine Department, for duty, from Fort Oglethorpe, Major SAMUEL B. MOORE, Alexandria.

West Virginia

To Camp Jackson, Columbia, S. C., for duty, Capt. WILLIAM F. CROW, Glen Easton.

To Camp MacArthur, Waco, Texas, as sanitary inspector, from Fort Oglethorpe, Lieut. WASHINGTON W. STONESTREET, Morgantown.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. WALTER E. VEST, Huntington.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. JOSEPH C. FORD, Oak Hill.

To Fort McPherson, Ga., for temporary duty, Lieut. JAMES E. HUBBARD, Hinton.

To New Haven, Conn., for duty, Lieut. JOHN W. GILMORE, Wheeling.

Honorably discharged, Capt. LEO HUTH, Fallansbee. On account of physical disability existing prior to entrance into the service, Lieut. GEORGE W. SHRIVER, Glendenin.

Washington

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOHN F. MacDONALD, Hoquiam.

To Plattsburg Barracks, N. Y., for temporary duty, Capt. JULIUS G. NEWGORD, North Yakima.

Wisconsin

To Camp Custer, Battle Creek, Mich., with the board examining the command for cardiovascular diseases, from Cape May, Capt. J. GURNEY TAYLOR, Milwaukee.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CORNEILIUS N. STUESSER, Oconomowoc.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. WILLIAM F. BAKER, Birnamwood; ADOLPH L. KYLLO, Grantsburg.

To Fort H. G. Wright, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. FRANK A. BOECKMAN, Greenwood.

To Fort McPherson, Ga., for duty, from Lakewood, Capt. OSCAR C. WILLHITE, Lake Geneva.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. NEAL S. SIMONS, Taylor.

Wyoming

To Camp Lewis, American Lake, Wash., for duty, Capt. CHARLES E. LANE, Lander.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Personal.—Dr. William C. Vandiver, Mena, is reported to be critically ill with nephritis.——The office of Dr. Roscoe T. Gephart, Cotton Plant, was destroyed, May 9, by a fire, which did $75,000 worth of damage to the town.

State Society Meeting.—At the forty-second annual session of the Arkansas State Medical Society, held at Jonesboro, May 7 to 9, Little Rock was decided on as the place of meeting for 1919, and the following officers were elected: president, Dr. Edward F. Ellis, Fayetteville; vice presidents, Dr. C. N. Phillips, Mena; Henry H. Righter, Helena, and Reuben Y. Phillips, Malvern; secretary, Dr. Clinton P. Meriwether, Little Rock (reelected), and treasurer, Dr. William R. Bathurst, Little Rock.

Public Health Meeting.—The annual meeting of the Arkansas Public Health Association was held in Little Rock, May 30, and the following officers were elected: president, Dr. Augustus C. Shipp (reelected), Little Rock; vice presidents, Drs. Octavius L. Williamson, Marianna, and Mrs. W. A. Billingsley, and treasurer, T. S. Shannon. The following physicians were elected as directors: Drs. Joseph E. Sparks, Crossett; Stanley M. Gates, Monticello; Dr. Charles W. Garrison, Little Rock; John Stewart, Booneville; Thomas J. Woods, Evening Shade; James W. Walton, Benton, and H. N. Niehuss, Eldorado.

Upholding Compulsory Vaccination Regulation. — The supreme court of Arkansas in an opinion rendered, June 3, 1918, has upheld a regulation promulgated by the state board of health providing that no person shall be a teacher, employee or pupil in a public school or a private school without having first presented to the teacher in charge, or the proper authorities, a certificate of a successful vaccination or of immunity by reason of having had smallpox.

The court, by Justice Humphreys, quotes the act of the legislature creating the board of health, and says that while the board is not specifically authorized to supervise, control, suppress or prevent smallpox by isolation, quarantine or vaccination, yet the language is broad enough to include all infectious diseases, of which smallpox is one, and for whose suppression or prevention rules may be made. While the state board of health is not authorized to manage or control the schools, the prevention of the spread of contagious or infectious diseases, by preventing unvaccinated persons from associating with the schoolchildren and school teachers of the state, in no way infringes on the constitutional right to attend the schools or management and control thereof by school boards or directors.

The contention that compulsory education, under the rule of the board would mean compulsory vaccination, could not stand because, while there is no American authority for compulsory vaccination in the sense of compelling one to submit his person thereto there is authority for penalizing one who refuses to comply with an order or law requiring vaccination. Decisions are quoted on this point. Both the vaccination rule and the compulsory education act are enforceable under penalty of fines, so they are to be read together.

ILLINOIS

Personal.—Dr. William M. Hanna, Aurora, has been elected medical director of the G. A. R., department of Illinois.——Mr. Howard W. Fenton has been appointed manager of the central division of the American Red Cross, with headquarters at Chicago, succeeding Mr. Bruce D. Smith, resigned to take up work in France for the Red Cross.——Dr. John B. Nardi, Chicago, who was seriously injured, Nov. 26, 1917, by being struck by an automobile while crossing Midway Boulevard, has recovered and will soon resume practice.

KENTUCKY

Personal.—Dr. Meverell K. Allen, formerly health officer of Louisville and medical director of the Inter Southern Life Insurance Company, was stricken with cerebral hemorrhage, June 19, and is under treatment at St. Joseph's Infirmary.——Dr. W. Ed. Grant has been appointed registrar of vital statistics for Louisville and for Jefferson County by the state board of health.

Louisville

Members of New Board of Health.—June 27, the governor announced the members of the state board of health, in accordance with the bill passed by the last legislature, reorganizing the state board of health and combining under one control the work of the tuberculosis commission, the pure food and drug division of the agricultural experiment station, the hotel inspection, and the work of the former state board of health. The members are as follows: Dr. Carlos A. Fish, Frankfort; Dr. George T. Fuller, Mayfield; Dr. Josiah G. Furnish, Covington, and Dr. H. H. Carter, Shelbyville, members of the old board; Dr. Argus D. Willmoth, Louisville, and Dr. Elijah H. Maggard, Wayland, from the tuberculosis commission; Dr. Oscar C. Dilly, Louisville, from a list submitted by the Kentucky Pharmaceutical Association and the board of pharmacy, and Dr. Carl Lewis Wheeler, Lexington, and Dr. John D. Williams, Ashland, from the state at large. The tenth member who was elected by the appointed members is Dr. W. Lucier Heizer, Bowling Green, former secretary of the tuberculosis commission, who by virtue of his office becomes the executive officer and secretary of the board. Dr. Willmoth was elected president and Dr. Wheeler vice president. Immediately on the announcement of the new board of health, Dr. Joseph N. McCormack, Bowling Green, secretary of the old board; Dr. William W. Richmond, Clinton, and Dr. Isaac A. Shirley, Winchester, of the old board, obtained a restraining order issued by Judge Robert L. Stout, of the Franklin Circuit Court, restraining the new board from exercising the functions of the state board of health, from organizing any of its bureaus, and from taking possession of the office, books and accounts, from claiming any of the rights or titles to the office as members of the board, and from interfering in any way with the old board's activities. The petition before Judge Stout names all the members of the new board, and denounces the section creating the new board as a violation of the constitutional requirement that the subject matter of all the sections of an act must be mentioned in the title of the act and must be related to it.

MARYLAND

Hopkins Hospital Raises Rates.—The Johns Hopkins Hospital has felt the effects of the war and consequently, in addition to raising the fee for all ward cases, has advanced the rates at the dispensary which patients applying for the first time will have to meet. Heretofore, patients applying at the dispensary for the first time were required to pay a fee of 10 cents for an admittance card, whereas they are now charged 25 cents for the first visit and 10 cents for each succeeding visit. Ward cases which were formerly $2 are now $2.50, and patients securing medicine will have to pay a sum as near the actual cost as their means will allow. The increase in rates at the Johns Hopkins Hospital should not cause serious hardships among the poor, as many men are now making triple the wages paid them a year ago. An effort is also being made to stamp out the practice of people who, though able to afford a physician, visit the dispensary and secure the benefits that others in dire straits should have.

MASSACHUSETTS

Hospital Cornerstone Laid.—The cornerstone of the reconstruction hospital to be erected in Boston by the Benevolent Protective Order of Elks, and presented by the organization to the government, was laid with impressive ceremonies, June 15.

State Medical Society Meeting.—The Massachusetts Medical Society held its one hundred and thirty-seventh annual meeting at the Boston Medical Library, The Fenway, June 18 and 19, and the following officers were elected: president, Dr. Samuel B. Woodward, Worcester (reelected); vice president, Dr. George P. Twitchell, Greenfield; secretary, Dr. Walter L. Burrage, Jamaica Plain, Boston (reelected); treasurer, Dr. Arthur K. Stone, Framingham Center, and orator, Dr. Samuel Crowell, Boston.

Beth Israel Hospital News.—The directors of the Beth Israel Hospital, Roxbury, Boston, have purchased a building, adjacent to the hospital grounds, in which they will establish an outpatient department. The medical staff has already been organized and the new department will be open by the middle of August. The directors of the hospital, at a special meeting, adopted resolutions offering the use of ten beds for the treatment of wounded soldiers and sailors returned to Boston, and furthermore offering enough space on the grounds of the hospital to accommodate 100 patients, providing the government will furnish tentage.

Personal.—Dr. Robert B. Greenough, Boston, has been reappointed, by the Harvard commission, director of the cancer commisison of the university, and surgeon in charge of the Collis P. Huntington Memorial Hospital. Dr. Channing C. Simmons, Boston, was appointed secretary of the commission and surgeon to the hospital, and Dr. Edward H. Risley, Boston, surgeon.——Dr. Edward A. Supple, Boston, has resigned as visiting surgeon to St. Elizabeth's Hospital.——Dr. Eoline B. C. Dubois, Springfield, has gone to France where she will be associated with the medical department of Secretariat of the Bureau of Liberated French Villages.

MINNESOTA

Infantile Paralysis Clinic.—The state board of health will hold its third free clinic for infantile paralysis cases at Mankato, July 2, at Worthington, July 8 and 9, at Tracy, July 10 and 11, and at Granite Falls, July 12 and 13.

NEW YORK

New York City

Farewell Dinner for British Physicians.—Sixty New York physicians and surgeons gave a farewell dinner at the Metropolitan Club on the evening of June 26 to Sir William Arbuthnot Lane, Sir James Mackenzie, and Col. Herbert A. Bruce, who expect to leave this country soon. Brief addresses were made by the three guests of honor.

New Hospital for the Bronx.—The Bronx Hospital Association has purchased the Eichlen estate, at Fulton Avenue and One Hundred and Sixty-Ninth Street, the Bronx, for a little more than $110,000. A campaign has been started to raise $35,000 with which to remodel the Eichlen mansion to serve as a hospital. A children's ward and a dispensary are also to be established on the estate. Dr. Alexander Goldman is president of the association.

Catholics to Build War Hospital.—The National Catholic War Council has about completed plans for the erection of a $300,000 hospital for soldiers and sailors in Manhattan. A site has been selected and arrangements are being made for the remodeling of one building and the construction of another. The hospital will have 500 beds and immediately on its completion, it will be turned over to the government for whatever purposes the War Department may desire.

Homes Offered as First Aid Hospitals.—At a committee meeting of the emergency unit of Harlem, composed of fifty physicians, it was announced that H. C. Frick, G. J. Gould, and S. Lewisohn have offered their homes to the police department in the event of an air raid or any other emergency. The unit has organized and its members are undergoing training for first aid work under Lieut. Abraham Lustgarten, U. S. M. C., in order that they may be ready to render assistance in case of emergency. Physicians and nurses in the hospitals in the Harlem district have been invited to avail themselves of the course of training offered. Among the members of the committee are Dr. Edward E. Myers, Dr. F. U. Rothstein, Dr. David E. Alexander, Dr. Morris Stark, Dr. Louis M. Pearlman, and Dr. Oscar E. Kupferman.

Fox Hills Base Hospital Completed.—The United States Base Hospital at Fox Hills, Staten Island, comprising eighty-six buildings, was completed, June 25, the entire plant having been constructed in 100 days. The hospital is now prepared to care for 3,000 patients. The staff consists of a personnel of 650, including physicians, nurses and attendants. There are three large wards containing 1,000 beds each. The hospital is one of the largest in the world. Col. William Rutherford, U. S. Army, M. C., will be in charge. In connection with the hospital, the American Red Cross has completed a theater for the patients which will seat 7,200 persons. Fifteen acres of land adjoining the hospital have been purchased by the government so that the capacity of the hospital may be doubled at any time.

Statistics of New York Milk Committee.—An infant mortality survey by the New York Milk Committee has just been made public, which shows that New York City has reached the lowest baby death rate in its history. The survey covers the year 1917, for which the infant death rate is 88.8 per thousand living births. In 1907 it was 135.8. For this decrease the various educational campaigns conducted by health authorities and others are given credit and the milk committee also claims a share of credit for these results. The statistics show that the number of babies that perish annually is still very large. There were 12,568 deaths of infants under 1 year of age for 1917 as against 16,000 in 1907. The report also contains a survey for the entire country based on figures from 163 of the largest cities. These show, with one exception, decreases in the infant death rate. The lowest mortality for cities of 100,000 population or more is found at Omaha and Seattle, which have 59.2 and 59.4 per thousand, respectively. The lowest rate for the entire country is held by Alameda, Calif., where the rate is 40.7. Four other cities of less than 50,000 with records a fraction higher than this record are Brookline and Everett, Mass., and La Crosse, Wis., and Berkeley, Calif. The highest mortality of the country was at Nashville, Tenn., which has a rate of 182.2, with a population of 119,364. The mayor's committee of women on national defense reports that the physicians of New York are cooperating well in the work of children's year. On one day recently 400 babies were weighed and measured in the Grand Central Palace.

NORTH DAKOTA

Personal.—Dr. Albert M. Fisher has resigned as physician to the state penitentiary, Bismarck, and has been succeeded by Dr. Clyde E. Stackhouse.——Dr. Henry O'Keefe, city health officer, has been elected secretary of the Grand Forks Board of Health.

New State Officers.—The thirty-first annual meeting of the North Dakota State Medical Association was held in Fargo, June 19 and 20, under the presidency of Dr. George M. Williamson, Grand Forks. A service flag bearing 125 stars was dedicated, and the following officers were elected: president, Dr. Edgar A. Pray, Valley City; vice presidents, Drs. William P. Baldwin Casselton; Fred E. Ewing, Kenmare, and Harley E. French, Grand Forks; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected); treasurer, Dr. William F. Sihler, Devils Lake; councilors, Drs. Edward M. Ranson, Minot; Frederick L. Wicks, Valley City; Le Roy G. Smith, Medina, and Charles MacLachlan, New Rockford; delegate to the American Medical Association, Dr. Charles MacLachlan, New Rockford, and alternate, Dr. Frank W. MacManus, Williston. The house of delegates made the following recommendations for members of the state board of medical examiners: Drs. Hugo O. Altnow, Mandan; Henry G. Woutat, Grand Forks, and Paul Sorkness, Fargo. Grand Forks was selected as the next place of meeting.

OHIO

New Hospital.—The dedicatory program of the Mercy Hospital, Toledo, continued from June 21 to 23, and on the last two days a public reception was held and an open-air address was delivered, June 22, by Dr. James J. Walsh, New York City, dean of Fordham University.

Hospital to Accept Early Tuberculosis Cases.—At a meeting of the representatives of county commissioners of Mahoning, Columbiana, Stack, Portage and Summit counties, June 14, it was decided that Springfield Lake Sanitarium is to be a hospital for curable rather than for incurable cases of tuberculosis.

Roentgen-Ray Association Organized.—As a result of the roentgen-ray clinic held in the Mansfield General Hospital during the first week in June, the Ohio Roentgen-Ray Association has been organized with Dr. Jacob Y. Salzman, Mansfield, as president, and Dr. Robert B. Cameron, Defiance, as secretary-treasurer.

Personal.—Dr. Frank Warner, Columbus, had conferred on him at the annual commencement exercises of the Denison University, Granville, June 12, the degree of D.Sc.——Dr. James A. Leonard, for sixteen years superintendent of the state reformatory, Ashland, has resigned on account of ill health.——Dr. William H. White, Cleveland, has been reinstated as chief medical examiner of the state industrial commission.——Dr. Amos C. Knestrick, Wooster, was operated on for appendicitis, June 12, and is reported to be doing well.

Cincinnati

Gift of Medical Library.—The Academy of Medicine recently presented to the Cincinnati General Hospital more than 3,000 volumes of medical books, the accumulation of nearly half a century.

Personal.—Prof. Lauder W. Jones, head of the department of chemistry at the University of Cincinnati, has resigned to accept the position of chief of the research division of gas defense at the American Hospital, Washington.——Dr. E. Peter Joseph has been adjudged insane and committed to Long View Hospital.——Dr. H. H. Bunzell has been appointed an assistant professor of biochemistry in the Medical College of Ohio.——Dr. William B. Wherry, professor of bacteriology in the University of Cincinnati, has been placed in charge of the Detroit School of Medicine.

PENNSYLVANIA

Personal.—Dr. H. Melvin Allen, Reading, Berks County, has been commissioned major, and Dr. Samuel Brister, first lieutenant in the Medical Corps, Pennsylvania Reserve Militia, and both have been assigned to duty with the First Infantry.——Dr. Joseph S. Neff, Narberth, formerly director of health of Philadelphia, has been appointed a member of the advisory board of the state department of health, succeeding the late Senator Daniel Gerberich, Lebanon.

WISCONSIN

Hospital Transferred.—Mercy Hospital, Oshkosh, formerly the Lakeside Hospital, has been formally transferred to the Sisters of the Sorrowful Mother, and will be in charge of Sister Cornelia. It is proposed to maintain a training school for nurses in connection with the institution.

Oaks Sanatorium.—The name Oaks Sanatorium was selected, June 26, for the new sanatorium for the cure of tuberculosis which is now operated by Waukesha County. The sanatorium, which is located in the northern part of Pewaukee Township, is practically completed, but it is not yet furnished. It will be opened as soon as the equipment can be installed.

CANADA

Public Health.—Halifax, N. S., wants a medical officer of health at a salary of $2,500 a year.

Personal.—Col. Harold C. Parsons, Toronto, who was with the University of Toronto Base Hospital overseas, has landed at New York and has gone on to Ottawa, where it is understood he is slated for an important military appointment.——Dr. Charles J. Copp, Toronto, has been attending a meeting of the St. John's Ambulance Brigade at Sidney, N. S.——Capt. Gordon A. Bates, Toronto, has gone to Nova Scotia to read papers before the Nova Scotia Medical Society and the Halifax Medical Society.

Hospital News.—By the will of the late Mr. John Ross Robertson, Toronto, proprietor of the *Evening Telegram*, the residue of his million-dollar estate is to revert to the Hospital for Sick Children, Toronto, on the death of his widow and only surviving son. Mr. Robertson was one of Canada's leading philanthropists and took a special care and interest in the Hospital for Sick Children. It is not to be amalgamated with the Toronto General Hospital under the terms of the will, otherwise it will lose the magnificent bequest. He also left several large amounts to other charitable institutions.——Dr. Charles K. Clarke, who has been superintendent of the Toronto General Hospital for a number of years, has definitely severed his connection with that institution and will hereafter devote his whole attention to the Mental Hygiene Association of Canada.——Dr. John N. E. Brown, formerly medical superintendent of the Toronto General Hospital and of the Ford Hospital, Detroit, has established in practice in Toronto, and is devoting special attention to consultation work in connection with the establishment of new hospitals.——The Winnipeg General Hospital is advertising for a medical superintendent.

Ontario Medical Council.—The Ontario Medical Council closed its annual session, June 28. The fact that a Toronto physician was before the court during the week for free-and-easy prescribing of liquor, precipitated what easily proved the most interesting of the proceedings of the council's deliberations for the whole session. In eleven days the physician in question had given 1,274 prescriptions for liquor under the Ontario Temperance Act. The result was a fine of $300 on each of four counts, making a total of $1,200. So far as action in disciplining the physician was concerned, the council simply referred the matter to the executive committee. But that action apparently does not meet with the approval of the Ontario License Board, who will hereafter require all vendors of liquor in the province, not later than the tenth of each month, to report the names of physicians and the total prescriptions issued by them each month. Dr. Edmund E. King, Toronto, president of the council, threw a small-sized, or perhaps it may be considered a large-sized, bomb into the council and also into the profession. He had secured official figures for Toronto on the way physicians were prescribing liquor. His statistics covered a period of ten days—from June 1 to June 11. Five hundred and twenty-five physicians had issued about 4,000 prescriptions for "booze." Some had issued as many as 52, 53, 63, 67, 68, 73, 99 and 215 each. The number of practitioners who had given more than one prescription was 275, and nearly one third of that number had given ten. During the month of April, 5,369 prescriptions were issued in Toronto, as compared with 9,255 in May. Under the law a physician may prescribe a quart at a time, but the council will petition the legislature to change this to 8 ounces. As the law permits a physician to keep 10 gallons for his practice at any time, some may also have been dispensed from the office. Dr. A. T. Callum, Niagara Falls, Ont., reported that medical examination of the manhood of Canada had revealed the fact that the percentage of unfit varies from 40 to 70 per cent. In view of these statistics Dr. Callum moved a resolution that some form of supervision of health should be instituted by the state, and that the matter be referred to the proper departments of the federal and provincial governments. The council went on record as disapproving the recommendation of Mr. Justice Hodgins that a department of physicotherapy in Toronto, Western and Queen's universities be established under the department of physics. They state it should be under the department of therapeutics. The following officers were elected: president, Dr. Robert Ferguson, London; vice president, Dr. Arthur T. Emmerson, Goderich, and registrar-treasurer, Dr. H. Wilberforce Aikins, Toronto.

GENERAL

New York and New England Railway Surgeons Meet.—The twenty-eighth annual session of the New York and New England Association of Railway Surgeons, will be held at Hotel McAlpin, New York City, October 21, under the presidency of Dr. James S. Hill, Bellows Falls, Vt. The symposium will be on "Modern Treatment of Infected Wounds."

Gastro-Enterologists Elect New Officers.—At the twenty-first annual meeting of the American Gastro-Enterological Association, held in Atlantic City, May 6 and 7, the following officers were elected: president, Dr. Walter A. Bastedo, New York City; vice presidents, Drs. Thomas R. Brown, Baltimore, and Franklin W. White, Boston; secretary-treasurer, Dr. Frank Smithies, Chicago, and recorder, Dr. Horace W. Soper, St. Louis.

Fraternity Convention.—The national convention of the Phi Beta Pi Medical Fraternity at Kansas City closed, May 3, with a banquet at Hotel Muehlebach, at which the following officers were elected: supreme archon, Dr. David S. Long, Harrisonville, Mo.; supreme vice archon, Dr. Dale D. Turnacliff, St. Paul; supreme secretary-treasurer, Dr. Lawson G. Lowrey, Boston, and supreme editor, Dr. Walter A. Fansler, Minneapolis.

Hospital Association Meets.—At the third annual meeting of the Catholic Hospital Association, held in Chicago, June 18 to 20, standardization was one of the principal subjects discussed and the following officers were elected: honorary president, the Rt. Rev. Sebastian G. Messmer, Milwaukee; president, Charles B. Moulinier, Milwaukee; vice presidents, Sisters Mary Joseph, Rochester, Minn., and Mary Esperance, Minneapolis, and secretary-treasurer, Dr. Bernard F. McGrath, Milwaukee.

Registry of Donors of Blood for Transfusion.—Professor Agote of Buenos Aires, the pioneer in transfusion of citrated blood, recently published an appeal in the lay papers for donors of blood for transfusion. In the *Anales*, published from his service, he gives a list of more than 200 names of persons who have registered as willing to give blood for transfusion, when called on. In addition to this list, a large number of others have registered but prefer not to have their names published. The list includes all the officers of one regiment.

Bequests and Donations.—The following bequests and donations have recently been announced:

Columbia University and Presbyterian Hospital, New York City, each $610,345 by the will of Kate Collins Brown.

Loomis Sanitarium, Liberty, Ill., and St. Mary's Free Hospital for Children, New York City, each $1,000 by the will of Mary M. Irwin.

Presbyterian Hospital, Chicago, about $708,500 for the establishment of funds in memory of George B. and Mary R. Harris, by the will of George B. Harris. Only the income from this fund is to be used.

American Red Cross, a portion, not to exceed $25,000, of his contribution to the second war fund for medical research, by Cleveland H. Dodge, New York City.

FOREIGN

Dr. M. Hata given Rank of Major-General.—Dr. M. Hata of Japan has recently been promoted to the position of "Yakuzaikwan" with the rank of Major-General. In this position, it is understood, he becomes head of the pharmaceutical corps in the Japanese army. The Japanese correspondent writes that the creation of a generalship for pharmacists in the army sanitary department had for some time been a pending question, and at a meeting of the cabinet, March 22, it was decided to change the army pharmaceutical ordinance to suit the purpose.

Escapė from Germany of Author of "Biology of War."—The Journal mentioned, Jan. 26, 1918, p. 252, that Dr. G. F. Nicolai, professor of physiology at the University of Berlin, had stated in his recent book, "The Biology of War," that he had been asked by a highly respected and prominent German official as to the feasibility of making bombshells so they would scatter cholera and plague germs. Nicolai mentioned this as one instance, among others, of the warping of the conceptions of scientists, military men and large circles of the populace to the effect that war justifies everything. The news item quoted from the *Observer* of Berne and the *Progrès Médical* of Paris that Professor Nicolai had been condemned to five months' imprisonment. Now an Associated Press dispatch of June 24 states that Professor Nicolai was one of the men who escaped from Germany last week in airplanes, landing in Denmark.

Honors for British Physicians.—In the list of honors published in Great Britain, June 3, numerous physicians were recognized for civil and military distinction. Among them were the following, some of whom are well known in this country: Companion of Honour—Sir Frederick Treves, Bt., G.C.V.O., C.B., K.C.B. (Civil)—Temporary Surgeon-General Humphry Davy Rolleston, C.B., R.N., C.B. (Military)—Temporary Major-Generals: Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., and Cuthbert S. Wallace, C.M.G. Colonels: Stuart Macdonald, C.M.G.; Edgar M. Pilcher, D.S.O.; Alexander Primrose, C. A. M. C.; Gerald T. Rawnsley, C.M.G.; Arthur E. Ross, C.M.G., C. A. M. C.; G. St. Clair Thom, C.M.G.; K.C.M.G.—Temporary Major-General Sir Berkeley G. Moynihan, C.B. Colonels: William H. Horrocks, C.B. (ret. pay); Sir William B. Leishman, C.B., F.R.S., K.H.P. Temporary Colonel Sir Ronald Ross, K.C.B., F.R.S. (ret. pay I.M.S.). G.C.V.O.—Lieut.-Gen. Sir Alfred Keogh, G.C.B., C.H. Knighthood—A. W. Mayo-Robson, C.B., C.V.O., F.R.C.S.; Harry Baldwin, M.R.C.S., Dental Surgeon to the King.

Patriotic Medical League in Italy.—The founding of the Unione dei Medici Italiani per la resistenza nazionale has been already mentioned in these columns. A general meeting was held recently with results, it is said, "worthy of the noblest traditions of the profession." One of the resolutions adopted suggested to physicians throughout the country and imposed on the members of the league "austere economy in the matter of those foods which are scarce at present, grains, meat, milk and sugar, the physicians themselves and the members of their families setting an example to others in this respect. No prescriptions or permits for food are to be given unless strictly for therapeutic necessities for the sick or delicate, specifying quantity and quality, enforcing a serene and uniform discipline for all in order to aid the country at large and the sick." Another resolution denounced in scathing terms some (apparently pacifist) utterances by certain colleagues, members of parliament, "at such a time as this when government and country need concerted action, unity of purpose, resistance for the enemy trampling the soil of Italy, destroying our brothers, mutilating our monuments and martyrizing our people." The league was founded to combat the insidious pro-German propaganda and by aggressive patriotic efforts by physicians and their families to spread their influence in widening circles.

Sanatogen and the German Chancellor.—The *Nederlandsch Tijdschrift* relates that some time ago—as was mentioned in these columns—the manufacture of sanatogen had to be suspended as, owing to the scarcity, the authorities shut off the supply of materials for it. The Sanatogen company then appealed to physicians throughout Germany asking for testimonials to the effect that "Sanatogen is an indispensable strengthening article for the sick and convalescents." The company hoped by this means to bring pressure to bear on the authorities so that the materials for the making of sanatogen would be allowed to be used for this purpose. The Reichskanzler, the authority in question, has now announced that demands for materials for this purpose are coming in at every turn, accompanied by the statements of physicians to the effect that the product of this manufacturing firm is admirably adapted to its purpose or indispensable. These declarations the chancellor continues, seem to be coming as the result of requests for them, and thereby it sometimes happens that physicians are remunerated for such declarations although perhaps not with money, yet with free supplies of the preparations in question. Our exchange comments on this as follows: "This is impressive testimony from the 'all-highest authority,' and, perhaps more than any admonitions in the medical press, it may induce willing physicians to be more cautious in giving full scope to their generous spreading abroad of testimonials." The chancellor's announcement further states that sanatogen, "notwithstanding the extensive advertising it has received—perhaps more extensive than has ever been made for an article of the kind—and also on account of its high price, has been declared by the experts in the advisory board of the Kriegsernährungsamt and the central board for the supply of fat as a preparation of albumin which is not necessary for the sick, but which, on the contrary, may be dispensed with. The imperial public health service (Gesundheitsamt) has also expressed the same opinion." The concluding paragraph of the chancellor's announcement stigmatizes the delivering of these attestations by the physicians in response to the request of the Sanatogenwerke as "injuring the respect for the medical profession."

Substitute Foods in Germany.—Schwalbe, the editor of the *Deutsche medizinische Wochenschrift*, has been appealing to the authorities to protect the public against injury from the newly invented substitutes for the ordinary foodstuffs. He demands that they be tested and not be allowed to be sold without an official permit. The Kriegsernährungsamt gives out information concerning them to the wholesalers and to the chemists engaged in food inspection, but this is no protection to the public; as the information in question is strictly confidential. The few fines imposed for serious infractions of the regulations in this line are of no help in the matter as the profits for the producers far outweigh the small fines imposed. The *Nederlandsch Tijdschrift*, in citing his communication on the subject, remarks that the judges, besides, are able to rely on the assertion of an expert authority, Dr. I. Hoppe, to the effect that a substitute article does not have to possess the nutritional value of the article for which it is a substitute. He says, "The opposite principle, namely, that we can substitute everything, is juster, and has besides high moral value, as it improves the morale, renders it easier to hold out, and guarantees victory." The German Association of Food Experts endorses this absurd principle. The insignificant influence of threats of punishment is seen in the number of these substitutes on the market. In November the figure had reached 7,000. Some of the German states have already introduced certain restrictions along the lines advocated by Schwalbe and also by Neustätter. In Baden, none of the substitute articles may be offered for sale without a permit. A sample of the article has to be presented with a certificate from some official inspecting board in regard to the composition of the article, or a fee of 50 marks be paid in case the investigation has to be done anew. The decision, whether favorable or unfavorable, is then published in the *Karlsruher Zeitung* at the expense of the applicant. The latter may then appeal to the minister of the interior. Noncompliance with the regulations may entail a penalty of six months' imprisonment or a fine, with exclusion from further trading. Similar regulations are in force in Würtemberg, Saxony and other states. In Saxony the net weight and the price of the article have to be specified on the label. It is further decreed that no use for advertising purposes may be made of the permission to sell the article. The Bundesrath has further regulated the sale of bouillon cubes. They may be sold as *Fleischbrühe*, "meat soup" or "bouillon," without the addition of the term "substitute," only when they contain meat extract or evaported bouillon, with salt, fat and extracts of vegetables, with at least 0.45 per cent. creatinin, and 3 per cent. nitrogen, and not more than 65 per cent. cooking salt, with no sugar or syrup. Even when labeled "substitute bouillon," they must contain at least 2 per cent. nitrogen and not more than 70 per cent. salt, without any sugar or syrup.

BUENOS AIRES LETTER

BUENOS AIRES, May 20, 1918.

Large Enrolment of Medical Students

The number of students enrolled in the medical department of the University of Buenos Aires is over 5,000. In 1917, there were 4,078 enrolled, distributed as follows: medicine 3,051, pharmacy 317, doctor in pharmacy 88, odontology 428, and obstetrics 194. Including the departments of law, engineering, philosophy and literature, agronomy and veterinary science, there are a total of 9,521 matriculated in the Universidad Nacional de Buenos Aires. There are only 984 inscribed in the medical department of the other university in the country, the University of Cordoba.

Reform in Management of the Cordoba University

The national government has modified the statutes of the University of Cordoba in accord with the general demand on the part of professors, students and graduates, giving them a more democratic orientation. The Academia will retain only its scientific functions, while the direction of the different departments of the university will be in the hands of a managing board for each. The members of these *consejos* are to be elected for a term of three years at a general assembly of all the professors.

Prophylaxis of Malaria

The newly appointed president of the Departamento Nacional de Higiene, Dr. G. A. Alfaro, has been visiting provinces affected with malaria, and has presided at *conferencias* held in the cities of Salta, Jujuy and Tucuman to determine the most practical ways and means for the combating of the malaria endemic.

The Cancer Institute

For lack of funds, work has had to be suspended on the Instituto del Cancer which is being constructed under the direction of the Academia de Medicina. Quite recently some donations have been received which allow the hope that the work can be resumed.

The Laryngologic Society

The Sociedad Argentina de Oto-rino-laryngologia held a special meeting, May 10, at which the subject of operations on the sinuses was discussed. Dr. Bracht presented a work on the endonasal operation for the maxillary sinus. Dr. Segura spoke on the treatment of disease of the sphenoidal sinus. His mode of access is by slitting the septum, by means of a submucosa resection, the same as for an operation on the pituitary body. This opens up the field amply and insures perfect drainage.

Personal

Dr. Pedro Benedit has been elected member of the Academia de Medicina to take the place left vacant by the death of Dr. P. Lagleyze. Dr. P. J. Hardoy, instructor in semeiology, and Dr. G. Valdes, instructor in surgery in the medical department of the University of Buenos Aires, have been elected regular professors after competitive tests.

LONDON LETTER

LONDON, June 4, 1918.

New Regulations for Military Medical Service

New regulations for military medical service have been issued, following the extension of age at which physicians are liable to 55 years. Special medical tribunals will be appointed for dealing with physicians. Certificates of exemption may be granted on the following grounds: (*a*) That it is expedient in the national interests that the physician should, instead of being employed in military service, be engaged in other work in which he is habitually engaged; or in which he wishes to be engaged; or, if he is being educated or trained for any work, that he should continue to be so educated or trained. (*b*) That serious hardship would ensue if the physician were called up for army service, owing to his exceptional financial or business obligations or domestic position. (*c*) Ill health or infirmity. (*d*) Conscientious objection to combatant service. A certificate of exemption may be absolute, conditional or temporary, as the medical tribunal thinks best suited to the case, provided that a certificate granted or renewed on personal grounds may be subject to the condition that the practitioner shall undertake such professional service and under such conditions as the director-general of national service may, after consultation with the medical tribunal and in concert with any government department concerned, from time to time deem best in the national interests. This includes civil medical service. Thus if the director-general of national service decides that there is a shortage of physicians in one district and that a physician can be spared from another, he may direct the physician to practice in the former district, or he may order him to undertake the work of a younger man who is called up for military service. When the need of using the physician in this way arises he may, if he chooses, appear before the local or central professional body and give reasons for not being assigned to the new duties required of him.

The Prevention of Anthrax

In spite of the precautions taken, the incidence of anthrax both in the warehouses and ports and in the worsted and woolen trades is increasing. A government committee, appointed to inquire as to the precautions for preventing infection in the manipulation of wool, goat hair and camel hair has just issued its report. The conclusion is that anthrax can be prevented only by preventing the disease among animals or by the destruction of the organisms in wool and hair. The committee, after careful experiments, has evolved a process by which the organisms may be destroyed. The essential features are: (1) A preliminary process in which material is submitted to the action of a warm solution of soap in water containing a little alkali, followed by squeezing through rollers. The effect is to cause disintegration of blood clots and the removal of all protection from spores, and to bring the latter into a condition in which they are susceptible to the action of disinfectants. (2) The disinfecting process in which material treated by the preliminary process is submitted to the action of a warm solution of formaldehyd in water, and again squeezed through rollers. Most of the spores are destroyed at this stage. (3) Drying, by which all the surviving spores are killed except in special circumstances. (4) Standing for a short time in order to insure the destruction of any spores which may, when exceptionally well protected, survive Stage 3. It is shown that the last two stages are largely in the nature of a safety factor. The experiments were carried out on a commercial scale, and the process causes no damage to the materials. Estimates were obtained of the cost of the necessary building and plant for the work, the committee being of opinion that the government should undertake it. The capital cost and equipment of a central station capable of disinfecting 10,000,000 pounds of wool annually would be $90,000, and the working cost, including depreciation and sinking fund, would vary from 1 to 1.5 cents per pound of untreated material. These figures were computed at prewar prices. About 75 per cent. would need to be added to meet present-day conditions, and manufacturers consider this reasonable.

The Food Situation

The decline of the submarine peril and the consequent arrival of supplies from abroad in greater quantity, especially the arrival of large quantities of American bacon, have considerably eased the food situation. The Sailors' Union and kindred bodies have agreed to a reduction in the statutory food scale to meet the present emergency in regard to meat. They have agreed that the meat ration shall be reduced by 50 per cent., subject to certain substitutes, principally bacon being provided. The following provision has been made for the supply of extra rations to expectant and nursing mothers: Expectant mothers may receive, on application in due form to the local food office, an extra ration during the last three months of pregnancy. This may consist either of two meat coupons per week or one butter coupon per week. In districts in which a milk priority scheme has been found necessary, they may also obtain a priority permit for 1 pint of milk daily during the same period. Nursing mothers will not themselves receive an additional ration, but are entitled to use the rations obtainable for the infant, namely, the ordinary child's weekly ration of meat, butter or margarin, and sugar, and in districts in which priority schemes are in force a priority certificate for 1½ pints of milk daily.

The Manufacture of Drugs Formerly Made in Germany

Before the war we were solely or almost solely dependent on Germany for a large number of drugs, and on the outbreak of hostilities a great shortage arose. Under the stimulus of the war, many British firms began experimenting with such success that first one drug and then another has been produced in satisfactory quantities. Among the first drugs to be manufactured were salicylic acid and its compounds, which were begun in 1915, and by the middle of 1916 were produced in sufficient quantities. Atropin sulphate was the next drug. Other drugs, previously wholly or mainly German, now produced in this country are: absolute alcohol, butyl-chloral hydrate, paraldehyd, lactic acid, homatropin, phenacetin, saccharin, salol, tribromophenol bismuth (xeroform), potassium permanganate, procain and arsphenamin. The last two drugs are claimed to be chemically identical with those produced in Germany. It is true that, as in the case of American-made arsphenamin and neo-arsphenamin, some cases of poisoning have occurred, and some authorities have expressed doubt as to the safety of the new preparations. However, they do not appear to be less safe than their predecessors, for it has been repeatedly proved that their German introducers and advocates both overrated the therapeutic properties of these drugs and underrated their possible dangers.

PARIS LETTER

Paris, May 30, 1918.

Favorable Action of Venesection With Chest Wounds

Dr. G. Blechman called attention to the fact (Société médicale des hôpitaux de Paris) that in certain cases of chest wounds the blood pressure is very high, affecting particularly the maximal tension, and coincident with grave asphyxia. These were patients who, in consequence of a perforating wound of the lung, presented the ordinary complications of chest wounds, hemothorax, pneumohemothorax or, in some cases, signs of pulmonary edema. It seems paradoxical to bleed patients who are already enfeebled by a previous external or internal hemorrhage, but, nevertheless, in every case in which it was instituted, phlebotomy rapidly produced a favorable result. In one such patient, the withdrawal of 125 gm. of blood gave immediate relief, and within forty-eight hours the maximal blood pressure fell from 21 to 15. These observations likewise confirmed the value of systematic blood pressure examinations in the surgical ambulances.

Sorghum Sugar

The sugar shortage has increased the demand in Europe for finding an exotic plant which will relieve this condition. Professor Guignard has called attention to the fact that sugar can be obtained from sorghum (*Sorghum saccharatum*), originally a native of equatorial Africa, transplanted to Egypt and from there to India and China. In France, the Société d'acclimatation has been actively interested since 1850, but the sugar mills and sugar refineries of the North then were enjoying wonderful prosperity, and wine culture was such a great source of income to the people of southern France that they would not interest themselves in this new sugar plant. Now that the sugar refineries of the North have been destroyed, it will be to the interest of the farmers of the Midi to plant sorghum. The regions of the Mediterranean basin are well suited for this purpose, especially the lower valleys of the Rhône and Garonne, all of south and southeastern France, Corsica, Tunis, Algeria and Morocco (in the cold countries the plant will not mature).

Sown in May, the plant reaches maturity in October. M. Daniel Berthelot of the agricultural chemical analysis station at Meudon has on numerous occasions analyzed sorghum with reference to its saccharin content. The ordinary sugar or saccharose content increases steadily until October, when it is 14 per cent., comparing favorably with the sugar beet. At that time the taste of the pith is agreeable and frankly sweetish. Unfortunately, sorghum sugar cannot be crystallized like beet or cane sugar; this accounts for the meager commercial success of the plant. However, it is easy to extract a sweet juice from the stem by chopping it up fine and passing it through a domestic fruit press, using it as a syrup.

Activities of an Association During the War

The Association générale des médecins de France has not had a meeting since the beginning of the war, until recently. The secretary-general explained the activities of the council of the association, giving assurances of the usual functioning of the services of the association at this time of need, doing all in its power to conserve the interests of the mobilized colleagues. It rendered an account of the operations of the Caisse d'assistance médicale de guerre since its foundation. The subscriptions have amounted to 990,000 francs, of which more than 150,000 francs have been given to the physicians of the invaded territory and their families.

Classifying the Officers of the Service de Santé by Age and Dependents

The classification of physicians of the commissioned personnel of the army according to class, age and dependents was mentioned in a previous letter. It has now been decided that the number of children will be taken into account in classifying the officers of this service. For each living child one year will be taken off the classification; for instance, a member of the class of 1898 (40 years of age) who has three children will be placed in the class of 1895. Widowers with children will be allowed an additional year; that is, a widower member of the class of 1898 having three children will be placed in the class of 1894.

Personal

The Académie de médecine, May 28, elected to membership in the section of physiology, Prof. Jean-Paul Langlois; section of medicine, Prof. Charles Walther, president of the Société de chirurgie de Paris. Professor Brachet of Brussels was elected a corresponding member of the section on anatomy, succeeding the late Dr. Francotte. Dr. Fernand Bezançon was elected to membership in the section on medical pathology. Professor Pozzi, vice president of the Académie, Prof. Pierre Marie and Dr. Thibierge have been appointed members of the Commission supérieure consultative du Service de Santé militaire. Dr. Follet has been appointed director of l'Ecole de plein exercice de médecine et de pharmacie de Rennes. At the meeting of April 30, the Académie de médecine elected Dr. A. A. Souques a titular member of the medicopathologic section in Fournier's vacant place. Dr. Souques, médecin des hôpitaux de Paris, received fifty-three of the fifty-six votes cast.

Institution of Three Meatless Days

The reduction in the supply of frozen meat and the difficulties that surround the requisition of cattle necessary for provisioning the army have forced the minister of agriculture and the food commissioner to renew the restrictions that instituted the three meatless days. On and after May 15, until a date to be fixed later, the sale or placing on sale of fresh, frozen, salted, prepared or conserved meats is forbidden on Wednesday, Thursday and Friday of each week. It is also forbidden to serve meats or meat dishes in any form or with any proportion of meat on these days in hotels, restaurants, buffets, cafés, *cercles*, etc. Meats are defined as butcher's meats (beef, veal, mutton, goat), pork, sausages and tripe in every form; poultry, rabbits and game. However, these restrictions do not apply to horse meat, which may be sold on these meatless days, but only by the butchers who sell such meat exclusively.

Nor do these restrictions apply to the meats destined for the troops even in the zone of the interior. Nor does it apply to the canteens and refectories of the factories and industrial establishments whose clientele consists exclusively of working people, to places of instruction, or to the sick treated at home or in hospitals and sanatoriums for whom a meat diet is ordered. The directors of these establishments will make known each week to the mayor the number of consumers for whose needs they must provide so that the proper quantity of meat can be delivered to them during the meatless days. This quantity must not exceed 300 gm. per person per day. The food commissioner hopes that he will be able to furnish during these meatless days, in some measure, substitutes, such as dried legumes and *pâtes alimentaires* (spaghetti, macaroni, etc.).

Honor for Gen. Leonard Wood

On the occasion of the return to America of Major-General Wood, who was the first American to be wounded on the French front, the medical students of the Faculté de médecine of Paris sent him the following resolution: "The medical students of the Faculty of Paris and the special students in the course of parasitology, filled with admiration and regard for Major-Gen. Leonard Wood, doctor of medicine, by reason of the fortunate initiative taken by him at Havana in the fight against yellow fever and of the salutary measure which he ordered taken, thanks to which this formidable scourge was completely suppressed, salute him as one of the most eminent promoters of modern hygiene and as a benefactor of humanity. They acclaim in his person the American army which has come to France to defend the right and civilization, and they hope for the speedy cure of the glorious wound which he received on the French front."

Deaths

Gwilym George Davis, Philadelphia; University of Pennsylvania, Philadelphia, 1879; aged 60; M. R. C. S. (Eng.), 1880; a Fellow of the American Medical Association; American Surgical Association, College of Physicians of Philadelphia, and American Academy of Medicine; a member of the American Orthopedic Association; associate professor of applied anatomy in his alma mater from 1900 to 1911, and professor of orthopedic surgery from 1911 to the time of his death; orthopedic surgeon to the Philadelphia General Hospital from 1902; surgeon to the Orthopedic, St. Joseph's, Episcopal and German hospitals; chief surgeon of the Widener School for Crippled Children; chairman of the executive committee of the North American Children's Sanitarium, Ventnor; died at his camp in Kineo, Me., June 16, from pneumonia.

Alexander François Liautard, Bois Jerome, France, formerly of New York City; New York University, New York City, 1865; aged 83; one of the pioneers of veterinary medicine in America; founder of the first veterinary college in the United States, and formerly dean of the New York College of Veterinary Surgery; one of the organizers and for many years president of the New York Veterinary Association; honorary fellow of the Royal College of Veterinary Surgeons, England, and corresponding member of the Central Veterinary Society of Paris; died at his home, April 20.

Joseph Cyrus Stedman, Jamaica Plain, Boston; New York University, New York City, 1890; aged 51; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; for several years surgeon to Faulkner Hospital, Jamaica Plain; formerly first lieutenant and assistant surgeon, First Regiment Heavy Artillery, Mass. V. M.; who had been in the South all winter on account of failing health; died in Johns Hopkins Hospital, Baltimore, June 14, from heart disease.

Frank Chase Richardson, Boston; Boston University, 1879; Hahnemann Medical College, Philadelphia, 1880; aged 58; registrar and professor of clinical neurology and electrotherapeutics in his alma mater; neurologist to the Massachusetts Homeopathic Hospital, and clinical director of the Evans Memorial Department of Clinical Research and Preventive Medicine; died at the summer home of Dr. Nathaniel Emerson, Duxbury, Mass., from neuritis, June 20.

M. Osborne Christian, Irvington, N. J.; Howard University, Washington, D. C., 1878; aged 69; for several years a member and more recently president of the board of trustees of Irvington, and for several terms a member of the board of freeholders; for many years an employee of the Geological Survey Bureau, Washington; died at the home of his daughter in South Orange, N. J., June 15, from cerebral hemorrhage.

Charles C. Allison, Omaha; Kentucky School of Medicine, Louisville, 1888; aged 52; a Fellow of the American Medical Association; professor of principles, and practice of surgery and clinical surgery in the John A. Creighton Medical College, Omaha; chief surgeon of St. Joseph's, Wise, Presbyterian and St. Catherine's hospitals; died at his home, June 19, from asthma.

Floyd Willis Lockwood, South Lyon, Mich.; Detroit College of Medicine and Surgery, 1909; aged 32; at one time a Fellow of the American Medical Association; a member of the Michigan State Medical Society; died at his home, June 15, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent.

Fayette Watt Birtch, San Francisco; Cooper Medical College, San Francisco, 1907; aged 41; a Fellow of the American Medical Association; professor of surgery in the University of California; resident physician in St. Luke's Hospital, San Francisco; died in San Jose, June 14, from disease of the throat.

Daniel Joseph Finegan, Gloucester, Mass.; Tufts College Medical School, Boston, 1902; aged 49; a Fellow of the American Medical Association; formerly medical examiner (coroner) of Essex County, and city physician of Gloucester; died in the City Hospital, Gloucester, June 15, from heart disease.

John T. Milnamow, Chicago; Northwestern University Medical School, 1882; aged 63; a Fellow of the American Medical Association; attending physician at St. Anne's Sanitarium and Hospital, Chicago, and president of the attending staff; died at his home, April 22, from anemia.

John W. Dean, Maryville, Wis.; Rush Medical College, 1863; Jefferson Medical College 1864; aged 76; a member of the State Medical Society of Wisconsin; a well known breeder of fine cattle; died at the home of his daughter in Plattsmouth, Neb., June 12, from heart disease.

Charles Conely Hendrick, New York City; Bellevue Hospital Medical College, 1894; aged 55; formerly medical health inspector of Hudson County, N. J., and acting assistant surgeon, U. S. Army; also an attorney; died suddenly in Dunellen, N. J., June 26, from heart disease.

John Moroney, Auburn, N. Y.; Long Island College Hospital, Brooklyn, 1874; aged 66; a Fellow of the American Medical Association, and a specialist in diseases of the eye, ear, nose and throat; died at his home, May 23, from carcinoma of the pancreas.

Lieut. William Edward Emery, M. R. C., U. S. Army, Bangor, Me.; Dartmouth Medical School, Hanover, N. H., 1914; aged 28; a Fellow of the American Medical Association; on duty at Fort Oglethorpe, Ga.; died at that post, June 11, from meningitis.

James L. Smith, Selmer, Tenn.; Memphis (Tenn.) Hospital Medical College, 1888; aged 68; at one time a member of the Tennessee State Medical Association; for more than forty years a practitioner of McNairy County; died at his home, June 12.

William T. Maffit, Chicago; Jenner Medical College, Chicago, 1903; aged 52; a member of the Illinois State Medical Society, and a member of the staff of St. Mary of Nazareth Hospital; died at his home, June 22, from pneumonia.

William Abbott Nason, Algonquin, Ill.; Northwestern University Medical School, 1866; aged 77; a Fellow of the American Medical Association and Fox River Valley Medical Association; died at his home, June 10, from senile debility.

Joseph Longworth Nichols, Saranac Lake, N. Y.; Johns Hopkins University, Baltimore, 1897; aged 42; who went to Saranac Lake on account of his health about twenty years ago; died at his home, June 18, from tuberculosis.

Amy C. Belot Monti, Hollis, Kan.; Kansas Medical College, Topeka, 1911; aged 38; at one time a member of the Kansas Medical Society; died in Phoenix, Ariz., April 27, from septicemia, following an infection of the finger.

Henry Abbott Winter, Saybrook, Ill.; Rush Medical College, 1873; aged 74; a Fellow of the American Medical Association; a veteran of the Civil War, and a practitioner for fifty-two years; died at his home, May 21.

George W. Stranahan, St. Joseph, Mo.; Northwestern Medical College, St. Joseph, Mo., 1892; Chicago Homeopathic Medical College, 1895; aged 62; died in a sanatorium in St. Joseph, June 12, from cerebral hemorrhage.

Julius Christian Voje, San Francisco; Cooper Medical College, San Francisco, 1894; aged 59; at one time a member of the Medical Society of the State of California; died at his home, June 18, from cerebral hemorrhage.

John W. Clark, Fristoe, Mo.; St. Louis College of Physicians and Surgeon, 1892; aged 55; a member of the Missouri State Medical Association; fell dead in his store in Fristoe, April 20, from cerebral hemorrhage.

William Lewis Schoales, St. Clair, Mich.; University of Michigan, Ann Arbor, 1878; aged 64; a Fellow of the American Medical Association; died at his home, May 28, from acute dilatation of the heart.

John Senn, Williamsport, Pa.; College of Physicians and Surgeons, Homeopathic, Buffalo, 1882; aged 71; a Fellow of the American Medical Association; since 1872 a clergyman; died at his home, June 17.

Granville Bell Harvey, Elkins, W. Va.; University of Maryland, Baltimore, 1877; aged 69; for several years a practitioner and druggist of Philippi; died in the Davis Memorial Hospital, Elkins, June 15.

James R. Holgate, Wyoming, Ill.; Rush Medical College, 1869; aged 77; at one time a member of the Illinois State Medical Society; died in a sanatorium in Kansas City, June 16, from pneumonia.

John Howard Bowser, Syracuse, Ind.; Medical College of Indiana, Indianapolis, 1885; aged 58; a member of the Indiana State Medical Association; died at his home, June 17, from angina pectoris.

John C. McCullough, McMechen, W. Va.; Medical College of Ohio, Cincinnati, 1881; aged 69; health officer of McMechen; died at his home, June 20, from pneumonia.

Robert Simpson, Philadelphia; University of Pennsylvania, Philadelphia, 1874; aged 75; a veteran of the Civil War, in which he served both in the Army and Navy; died at his home, June 18.

Albert Edson Stafford, Whitesboro, N. Y.; Syracuse (N. Y.) University, 1901; aged 41; a Fellow of the American Medical Association and health officer of Oneida County; died at his home, recently.

William T. McAvoy, Brooklyn; Bennett Medical College, Chicago, 1913; aged 37; formerly a member of the staff of the Swedish Hospital, Brooklyn; died at his home, June 21.

S. M. Matthews, Moultrie, Ga.; Hospital College of Medicine, Louisville, Ky., 1883; aged 84; died at the home of his daughter in Berlin, Ga., May 22, from senile debility.

Porter Harman Carpenter, Los Angeles and Monrovia, Calif.; State University of Iowa, Iowa City, 1910; aged 39; died in Los Angeles, May 25, from tuberculosis.

Jonathan R. Downing, Yorktown, Ind.; Medical College of Indiana, Indianapolis, 1878; aged 73; a veteran of the Civil War; died at his home, June 21, from dropsy.

James S. Owens, Los Angeles, and Ocean Park, Calif.; Hahnemann Medical College, Chicago, 1870; aged 62; formerly of Chicago; died at his home, June 16.

Peter Conroy, Charlottetown, P. E. I.; Laval University, Montreal and Quebec, 1878; aged 63; died at his home in March from pneumonia.

Joseph Brown Wheatley, Greensburg, Ind.; aged 84; who retired from practice many years ago; died at his home, May 17, from senile debility.

George C. Gilmer, Big Stone Gap, Va.; Medical College of Virginia, Richmond, 1873; aged 72; died at his home, June 13.

Albert E. Gesler, Saranac, Mich.; Pulte Medical College, Cincinnati, 1877; aged 68; died at his home, June 15.

Marriages

Major John Burr Piggott, M. R. C., U. S. Army, Washington, D. C., on duty at Fort Oglethorpe, Ga., to Miss Alice Francis Bell of New York City, at Fort Oglethorpe, June 18.

Lieut. Louis Jay Goldblatt, M. R. C., U. S. Army, McKeesport, Pa., on duty at Hospital, Port Newark Terminal, Newark, N. J., to Miss Charlotte Roslyn Fagin of Philadelphia, June 16.

Lieut. Stuart Howard Bowman, M. R. C., U. S. Army, Maquoketa, Iowa, on duty at Camp Meade, Md., to Miss Bess C. Moses of Albany, N. Y., at Washington, D. C., recently.

Lieut. Louis Dwight Barnes, M. R. C., U. S. Army, Lanesboro, Mass., on duty at Camp Wadsworth, Spartanburg, S. C., to Miss Mildred Wilberta Pruden, at Lanesboro, June 19.

Joseph Hannold McElhinney, Palm City, Calif., to Mrs. Ellen M. Healy of Greenwich, Ohio, at San Bernardino, Calif., June 11.

Lieut. Arthur Merrill Shaeffer, M. R. C., U. S. Army, Lancaster, Ohio, to Miss Anna Lou Hyde of Columbus, Ohio, June 27.

Capt. Wynand van Korlaar Pyle, M. R. C., U. S. Army, Detroit, to Miss Helene Aldworth of Grand Rapids, Mich., June 22.

Lieut. Reed Albert Shank, M. R. C., U. S. Army, Cincinnati, to Miss Melda Hatfield of Welch, W. Va., September 4.

Lieut. John Hess Foster, M. R. C., U. S. Army, Boston, to Miss Helen Odiorne Thomas of Farmington, Me., June 21.

P. A. Surg. Charles Joseph Holman, U. S. Navy, to Mrs. Priscilla Maddox Meyer, at Roland Park, Baltimore, June 19.

Claude Lorraine LaRue, Boulder, Colo., to Miss Ursie Bollinger of Shreveport, La., at Denver, June 11.

William Todd Ferneyhough, Carlin, N. J., to Miss Rena Crumm of Arlington, Md., at Baltimore, June 19.

Surg. Benjamin W. Brown, U. S. P. H. S., to Mrs. Lizzie Faison Lanbeth, at Charlotte, N. C., May 15.

Lieut. John B. Farrion, U. S. N. R. F., Portland, Ore., to Miss Marie Boylston of Chicago, recently.

Clyde Hiteshue Cable to Miss Bernice Rowe, both of Cleveland, at Canton, Ohio, recently.

Clayton Grube Stadfield to Miss Anna Meda Sprotte, both of Los Angeles, June 12.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

HENRY SMITH WILLIAMS AND "PROTEAL THERAPY"

To the Editor:—Will you please advise as to the success and safeness in using the Proteal treatment for tuberculosis by Henry Smith Williams, M.D., LL.D., 104 East 40th Street, New York?

C. P. Burchard, Alamogordo, N. M.

To the Editor:—Kindly send me any available information on "The Proteal Treatment for Cancer." An article by Dr. Henry Smith Williams, 120 West 32 Street, New York City, in April *Hearst's* has caused relatives to request its use in a case of carcinoma of the liver under my care.

M. M. Reppard, Middlebourne, W. Va.

To the Editor.—I am enclosing a leaflet, mailed to me on request, by Dr. Henry Smith Williams of New York City, who published a series of articles during the last year in *Hearst's Magazine* on "Proteal Therapy." If you have investigated this man and his proteal treatment, I should like to know the result of your findings. I am a consumptive and am, therefore, particularly interested in its alleged benefactions for the treatment of tuberculosis.

Michael A. Long, Glen Lake Sanitarium, Hopkins, Minn.

To the Editor.—What information can you give me regarding Henry Smith Williams, M.D., LL.D., 104 East Fortieth street, New York, and the therapeutic value of the "Proteal Therapy" that he has originated?

M. D. Baker, M.D., San Jose, Calif.

The above letters are selected from many received on the subject. Henry Smith Williams is better known in the journalistic world than in the field of scientific medicine. He was graduated by the Chicago Medical College in 1884. In the thirteen issues of medical directories of the United States that have been published during the past thirty years Dr. Williams' name does not appear—except for the issues of 1890 and 1893—until the 1914 edition. So far as we have been able to find, Dr. Williams had not until 1915 contributed any articles to medical journals. The catalog of the Surgeon-General's Library contains no reference to any articles of Dr. Williams except those that have appeared in popular magazines. The volumes of the *Index Medicus* from 1907 until 1914, inclusive, also contain no references to any articles by him in medical journals. The Journal's author-index to current medical literature from 1900 until 1914, inclusive, fails to record any articles by Dr. Williams in medical journals. Dr. Williams' articles, however, in popular magazines have been voluminous and numerous. Sometimes his articles have been under his own name and sometimes under the *nom de plume,* "Stoddard Goodhue, M.D." Under the latter name the *Cosmopolitan* published articles on "Adding Years to Your Life," "Battle of the Microbes," "Do You Choose Your Children?" and "What is the Matter With Your Brain?" Under his own name articles have appeared in popular magazines on such subjects as "Burbank's Way With Flowers," "Every Woman Her Own Burbank," "Why Not Live Forever?" "Science of Breeding Kings," "New Cancer Treatment," "New Hope for Rheumatism Sufferers," etc. In addition, Dr. Williams has published books on such subjects as "History of the Art of Writing," "Historians' History of the World," "Story of Nineteenth Century Science," "Luther Burbank," "Twilight Sleep" and others. The Goodhue Company of New York City, which publishes some of Dr. Williams' books has, we understand, for its president, Dr. Henry Smith Williams, for its vice president, Dr. William's wife and for its secretary-treasurer, Dr. Williams' daughter.

Readers of The Journal will remember the publicity given in 1915 and 1916 to an alleged treatment for cancer, sometimes called the "Horowitz-Beebe Autolysin Treatment." The method was heralded widely both in a certain portion of the medical press and in popular magazines and newspapers. A popular article by Henry Smith Williams on "The New Cancer Treatment" appeared in the *Illustrated World* for October, 1915, with pictures of Dr. Horowitz, Dr. Beebe, etc. A month or two later physicians received, gratis, from the

Goodhue Company a neatly bound little book on "Alcohol Hygiene and Legislation," by E. H. Williams, M.D. (brother of Henry Smith Williams). Enclosed with it was a letter from the Goodhue Company asking physicians to accept the book. The body of the letter was devoted to calling the attention of physicians to an "important work" by Dr. Henry Smith Williams on "The Autolysin Treatment of Cancer" that the Goodhue Company was publishing. With the letter, there was a small advertising pamphlet "Issued by the Autolysin Laboratory" and advertising that product. In addition, the last thirteen pages of the book on "Alcohol Hygiene" contained advertisements of the Goodhue Company's publications with particular emphasis (four pages of it) on the "Autolysin Treatment of Cancer," by Henry Smith Williams.

In May, 1917, physicians in the West received a letter from the "Ellison-White Chautauqua System" informing them that Dr. Henry Smith Williams was to lecture at "your Chautauqua" and reminding them that "he has recently issued two volumes, 'The Autolysin Treatment of Cancer' which he believes will be his greatest contribution to medical science." The present "Proteal" treatment appears to be a modification of the "Autolysin" treatment. Dr Williams, in attempting to justify the use of his "Proteal" in tuberculosis, cancer, rheumatism, etc., takes advantage of certain investigations bearing on the nonspecific reactions resulting from the parenteral injection of foreign proteins. So far as we can discover, there is no scientific evidence to indicate that the "Proteal" treatment expounded by Williams is of value in the treatment of cancer, tuberculosis or the other numerous diseases for which the "Proteals" are recommended.

It is a question whether such articles as those on "The Proteal Treatment of Cancer," "New Hope for Rheumatism Sufferers," etc., published in popular magazines or newspapers serve any useful public purpose. May they not, on the contrary, by raising false hopes, cause much mental suffering and do scientific medicine great harm?

OPHTHALMOL-LINDEMANN

Report of the Council on Pharmacy and Chemistry

Ophthalmol-Lindemann was taken up for consideration by the Council because of inquiries received. The following report, declaring Ophthalmol inadmissible to New and Nonofficial Remedies, was adopted by the Council and its publication authorized. W. A. Puckner, Secretary.

Ophthalmol-Lindemann (Innis, Speiden and Co., New York) is advertised as a treatment for eye diseases by "hyperemia." The circular advertising the product is written somewhat in the style of "patent medicine" advertisements. It contains testimonials of dubious value. The principle underlying the use of Ophthalmol is that employed to a considerable extent by ophthalmologists, through the use of ethylmorphin ("dionin"), etc., viz., the production of conjunctival irritation in inflammatory eye diseases. Ophthalmol is, therefore, merely a special agent for the production of such ophthalmic irritation.

The advertising circular contains no evidence that Ophthalmol is in any respect superior to the established agents for producing conjunctival hyperemia. On the other hand, there are obvious objections to the use in the eye of a substance of unknown and apparently indefinite composition and uncertain activity. Ophthalmol is said to be an oily solution of "glandular extract of the fish Cobitis Fossilis." *Cobitis fossilis* is a small fish said to be common in Germany. According to Kochs, who analyzed Ophthalmol (*Arb. a. d. Pharm. Inst. d. Univ. Berl.*, 1907, **4**, 140), this fish is popularly believed to predict weather, but medical virtues are not ascribed to it. This "fishy" extract is indefinite, to say the least.

The activity of the preparation is described by the manufacturer thus: "It seems probable that the typical action of Ophthalmol is due to certain organic acids which may have formed during manufacture through the decomposition of protein bodies contained in the crude material." The profession is not told whether this important decomposition is, or, in fact, can be controlled so as to produce a material of uniform activity.

Kochs concluded from his analysis that Ophthalmol had the properties of rancid olive oil containing about 6 to 7 per cent. mineral oil. The oil contained no nitrogen, left no ash on ignition and though traces of iodin were claimed to be present, no iodin could be found.

It is recommended that Ophthalmol be rejected first, because the use in the eye of an irritant of secret composition and uncertain activity is unscientific and against the interest of public health; second, because Ophthalmol is of secret composition (the composition claimed being practically meaningless), and, third, because no evidence has been submitted to substantiate its claimed superiority over established methods of treatment. The Council declared Ophthalmol inadmissible to New and Nonofficial Remedies.

Correspondence

PARAFFIN PAPER FOR SURGICAL DRESSINGS

To the Editor:—Comment on the article on paraffin paper for surgical dressings by Dr. Charles M. Harpster, Toledo, Ohio, in The Journal for June 8: I tried this method of dressing wounds in 1908 and discarded it because of the imperforate character and allowing poor drainage. I found, however, that if this wax paper was perforated every quarter of an inch with a No. 4 eyelet punch (which can be bought very cheap in any hardware store and some twenty thicknesses of paper can be perforated at one punch) it served the purpose admirably. I reported my experience at the meeting of the American Association of Railway Surgeons in October, 1910. This perforated paper has been used very extensively in the Youngstown Hospital and is a cheap and durable dressing. It allows ample drainage and ample protection to granulation and is not removed from the wound until the wound is healed, unless it becomes loosened.

I began using it only for burns, but during all of these years we have used it on all kinds of granulated wounds.

I trust that this may add a little more to our war methods.

C. C. Booth, M.D., Youngstown, Ohio.

A PLEA FOR THE GENERAL ADOPTION OF A PLAN OF HOSPITAL ORGANIZATION THAT WILL RELEASE COMPETENT PHYSICIANS FOR ARMY SERVICE

To the Editor:—The United States is now in the war. The nation is getting its stride. The changes and readjustments that are required for the effective conduct of the war are difficult, and are becoming more difficult every day, but they are never impossible. Of necessity, the business of the country has been reorganized; the same imperious necessity calls for the reorganization of the civil hospitals.

Up to the present time, the enrolment of medical men has kept pace with the Army's growth. But a million Americans have now taken their place in the fighting line; ships are available for the rapid transportation of a second million; a third million is streaming into the training camps, and more doctors are needed. The hospitals of the country must help to furnish them—they can if they will.

By undertaking to retain in its service only the actual number of men required to care for its patients, the hospitals can at once release a large number of physicians for Army service. *Every hospital that has not already done so should at once place its staff on a war footing by abolishing the rotating service.*

What is the rotating service? It is a plan of organization which requires or permits two, three, four, or even six men, each serving six, four, three, or perhaps only two months, annually, to hold down one man's job. There may be reasons of educational policy which justify a rotating service in ordinary times; today any such plan is contrary to the national interest and is self-condemned. In this crisis no plan of organization is admissible which does not release every competent physician who can be spared for military duty. No man should be permitted to excuse himself from entering the Medical Reserve Corps on the plea that a hospital needs him, unless his presence in that hospital is indispensable—not two, three, or four months in the year, but all year.

For the period of the war the rotating service must go. The continuous service plan is the only patriotic plan of hospital organization at this time. *One job, one man!* It is the duty of hospital authorities to adopt this plan now, and to make it plain to the men who are thus released from hospital service for the period of the war, that the purpose of their release is to make it easier for them to decide where the path of duty lies.

S. S. Goldwater, M.D., New York.
Chairman, War Service Committee, American Hospital Association.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MILITARY ELIGIBILITY OF THOSE BLIND IN ONE EYE

To the Editor:—1. If a physician has an artificial eye, is he in your opinion eligible for the Medical Reserve Corps?

2. Could one so afflicted be used in any branch of the service?

R. W. Chapman, M.D., Newark, N. J.

Answer.—1. A physician with only one eye is not eligible for a commission in the Medical Reserve Corps of the Army.

2. According to the new standards of physical examination governing the entrance to all branches of the Army: Those with blindness in one eye, with normal vision in the other eye without glasses, may be accepted for special or limited military service. As to just what this service would involve, we cannot state.

YOHIMBIN—ELECTRARGOL

To the Editor:—Please tell me the present opinion concerning: (1) yohimbin as an aphrodisiac, and (2) electrargol in infections, rheumatism in particular, both acute and chronic. Please omit my name.

X. Y. Z.

Answer.—1. During recent years very little has been written regarding the use of yohimbin as an aphrodisiac. We believe that the use of the drug has been generally abandoned.

2. Electrargol is a colloidal suspension (commonly called colloidal solution) of silver (see New and Nonofficial Remedies, 1918, p. 367). Little or nothing has been published recently concerning the use of colloidal silver preparations in the treatment of rheumatism. We believe that in general its use has been abandoned, despite the occasional favorable reports which were published some years ago. We give below a list of references to literature on these subjects:

Gardner, H. T.: Notes on Yohimbine, *Pharm. Jour.*, 1909, **28**, 184.
Williamson, J. R.: Yohimbine as an Aphrodisiac, *New York Med. Jour.*, 1901, **74**, 709.
Denman, R.: Electrargol in Smallpox and Plague, *Brit. Med. Jour.*, June 6, 1914.
Denman, R.: Electrargol in Smallpox, *Brit. Med. Jour.*, Oct. 11, 1913.

ABSORPTION OF NICOTIN BY COTTON

To the Editor:—In your opinion, does absorbent cotton placed in a cigar holder prevent the passing of nicotin to the smoker?

Alfred LaBine, M.D., Houghton, Mich.

Answer.—Yes.

MARIHUANA, SYNONYM FOR CANNABIS INDICA

To the Editor:—Please publish information as to what maruhuana (or marajuana) is, and its effects. What relation does it bear to cannabis indica?

H. W. Yemans, Major, M. R. C.

Answer.—We can find no reference to "maruhuana" or "marajuana" in available works dealing with drugs. According to Squire's "Companion to the British Pharmacopeia" (Edition 19, 1916) marihuana is a synonym in the Mexican Pharmacopeia for cannabis indica. The same name is also mentioned as a synonym for cannabis indica in "Plant Names," by A. B. Lyons (Edition 2, 1907).

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 9. Chairman, Dr. S. W. Welch, State Capitol, Montgomery.

Connecticut: New Haven, July 9-10. Sec. Regular Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 728 State St., Bridgeport; Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

District of Columbia: Washington, July 9-11. Sec., Dr. E. P. Copeland, The Rockingham, Washington.

Massachusetts: Boston, July 9-11. Sec., Dr. W. P. Bowers, Rm. 501-1 Beacon St., Boston.

Oklahoma: Oklahoma City, July 9-10. Sec., Dr. J. J. Williams, Weatherford, Okla.

Pennsylvania: Philadelphia and Pittsburgh, July 9-13. Sec., Mr. N. C. Schaeffer, State Capitol, Harrisburg.

Rhode Island: Providence, July 11. Sec., Dr. B. U. Richards, State House, Providence.

South Dakota: Deadwood, July 9. Sec., Dr. P. B. Jenkins, Waubay.

West Virginia: Wheeling, July 9. Health Com., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Colorado April Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, April 2, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 12 candidates examined, 8, including 3 osteopaths, passed, and 4, including 2 osteopaths, failed. One candidate, an osteopath, was caught cheating. One candidate was refused a license, 1 candidate refused to appear before the board, 1 candidate failed to appear before the board and 1 candidate withdrew his application. Ten candidates were licensed on credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1916)	85.4
Tulane University		(1908)	*
Kansas City College of Medicine and Surgery		(1917)	77.2
Washington University		(1906)	*
University of Cincinnati		(1912)	75.3
	FAILED		
Baltimore University		(1897)	68.2
Eclectic Medical Institute		(1908)	38.6

* No grade given.

College	LICENSED ON CREDENTIALS	Year Grad.	Total No. Licensed
University of Arkansas		(1901)	1
Columbian University		(1897)	1
Northwestern University		(1902)	1
Rush Medical College		(1916)	1
Tufts College Medical School		(1912)	1
Michigan College of Med. and Surg.		(1904)	1
Washington University		(1906)	1
University of Nebraska		(1916)	1
University of Oklahoma		(1913)	1
Vanderbilt University		(1886)	1

Idaho April Examination

Dr. Ray H. Fisher, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Pocatello, April 2-3, 1918. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1911)	85
Rush Medical College		(1897)	75
College of Physicians and Surgeons, Keokuk		(1893)	75
Lincoln Medical College		(1904)	75
Columbia University		(1918)	83

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver College of Medicine		(1894)	Colorado
Rush Medical College		(1891)	Oregon
University of Kansas		(1912)	Oregon
Kentucky School of Medicine of Louisville		(1906)	Washington
St. Louis University		(1905)	Washington
Willamette University		(1907)	Oregon
Hahnemann Med. Col. and Hosp. of Philadelphia		(1903)	Washington
Jefferson Medical College		(1908)	Utah

Book Notices

The Psychology of Conviction. A Study of Beliefs and Attitudes. By Joseph Jastrow, Professor of Psychology in the University of Wisconsin. Cloth. Price, $2.50 net. Pp. 387. Boston: Houghton, Mifflin Company, 1918.

This book contains essays contributed by the author to various publications during the past year, as well as others especially prepared for this volume, the whole forming a coherent series. The psychology is pragmatic; the problems discussed are those of the everyday life of the moment. It is a demonstration of clear thought applied to the beliefs of the public. The author displays an intensive knowledge of medical science, and information such as is demonstrated by few of the collegians who specialize in the related sciences.

The present volume is an analysis of the credulity and opinion of the public. It is important as defining the growth of that public opinion, which it analyzes as "outgrown beliefs which still linger in strange persistence, popular beliefs in conflict with expert conclusion and the varied range of controversy in which protagonists contend for opposite verdicts upon much the same though differently selected evidence." Relative to the motives for the war the author says:

> The world war has shaken convictions and made necessary an examination of foundations, and a fundamental inquiry into the basis of those values that keep endeavor keen and civilization alive. In such times we learn to cherish with an increasing fervor the convictions that sustain our national and our individual being. The shock to men's minds has been as serious as to their senses. That German minds could think as they do seems even more amazing than that German hands should be so infamously polluted with crime. The assault upon reason has been as savage and as deadly as the violation of law, of morality, of decency, of honor, of humanity. The intellectual violation is the more responsible, since by its nature it emanates from the trained leaders, those by calling competent and vowed to the defense of the value of right thinking.

In considering the line of thought to be followed by the public mind during the war, Professor Jastrow makes this comment relative to the attitude of the antivivisectionists toward the Red Cross:

> War time demands that minor differences of opinion be set aside in favor of an indispensable unity of action; and by the same token it demands that no portion of the community be estranged from the common cause by a hostile attitude toward tenets and principles which in time of peace have contributed to the moral capitalization of the nation. Still more bindingly the same obligation rests upon advocates of views (in whatever field of opinion) which the majority regard as false and dangerous, but which under ordinary conditions are accorded a tolerant hearing, though equally a vigorous protest under approved principles of controversy. A flagrant violation of this tolerance appears in the suit instigated by the antivivisectionists against the Red Cross organization to prevent the use of funds in the interests of medical research; and by that means, to mitigate the sufferings and save the lives of the victims of war. To push a private prejudice against a public interest at this time and in this manner is an ignorant, obstinate, and malicious attack, inhumane and unpatriotic even though sincere; it is a tragic demonstration of the menace that lies in unreason. Though exceptional, the instance should be used to strengthen the forces of reason and loyalty.

The first chapter is on the subject of the work, the psychology of conviction, introducing the method of study and the basic principles underlying the human belief and credulity which are most closely considered in the second chapter. In this chapter the author analyzes the developments of various medical beliefs, as, for example, homeopathy. His study pends largely on the essay of Dr. Oliver Wendell Holmes, "Homeopathy and Its Kindred Delusions." Numerous cases are cited as to the enormous credulity of the too easily convinced public. It is here that the author first considers the inconsistency of Christian Science:

> To complete the collection of types of credulity, we should have an instance in which a system of interpretation of facts—not a mere narrative—in itself startling and contradictory to ordinary experience, gains widespread credence, and that in spite of pronounced inconsistency with verifiable observation and common sense. These conditions are remarkably well satisfied by the recent promulgation of the doctrines of Christian Science. Even in this field of intellectual effort, the land of the free and the home of the brave has contributed an article worthy to compete with the foreign product. Eagle-like, this system spreads its wings and soars free from the bonds of sense or earth-bound realities, free from human logic and the errors of mortal mind, free from the material impediments which nature has inconsiderately set in our paths, free to make things so by thinking them so, free to set method and learning and experience at naught. And surely it calls for courage of no common order to resist the seductive appeals of eye and ear, to sail steadily on heedless of the calls of sirens of rationality, convinced at the outset that things cannot be as they are, and refusing the nod of recognition to the plebeian idols of the ills of flesh. It is not necessary in this connection to recount the beliefs of this system; it is sufficient to point out that when thousands of intelligent persons give practical adherence to, and enroll themselves under the banner of one who teaches that a bunion would be an adequate cause of insanity, if only we held the same belief about the bunion as we do about congestion of the brain; that smallpox is contagious by reason of the same agencies as make weeping or yawning contagious; that fear may be reflected in the body as fractured bones, just as shame is seen rising to the cheek; that anatomy and physiology and hygiene are the husbandmen of sickness and disease, while the reading of a textbook of Christian Science is equally effective in producing health; that when a healthy horse takes cold without his blanket, it is on account of the poor creature's knowledge of physiology—then such persons can hardly complain if they are cited as instances of modern credulity.

The supernatural is the chief subject of the third chapter, and in the fourth the author discusses especially the well known case of Eusapia Palladino. In the fifth chapter he considers the antecedents of the study of character and temperament, bringing in here the development of the humoral theory and growth of phrenology and of so-called physiognomonic science. The sixth chapter concerns fact and fable in animal psychology and the training of alleged educated animals, discussing particularly the famous Berlin horse "Kluge Hans" and "Jim Key," another equine sage. The seventh chapter, one of the most important for physicians, concerns "malicious animal magnetism," M. A. M., the antithesis, if one might hazard a wheeze, to A. M. A. This is a complete study of the growth of Christian Science, from the theories of Mesmer, through Dr. Quimby, to Mary Eddy and her disciples. One of the particular statements in this instance is:

> The loyal Christian Scientist may tolerate or cherish large reserved areas of belief in which an alien logic rules; he is, however, careful to draw the boundaries between these areas and the practical field of operation of his business affairs. He is hardly likely to treat in the same manner a Christian Science statement and a bank statement; nor will he assemble a company and ask their aid toward increasing his balance in the bank by throwing forth intense mental vibrations, or have a fear that his balance will be endangered by the malicious mental concentration of his rivals; he is not likely to believe that fluctuations of stocks can be brought about by "absent treatment" on the part of "metaphysical" bulls and bears.

The eighth chapter concerns the democratic suspicion of education, the title itself being explanatory. The ninth chapter discusses the psychology of indulgence, referring particularly to the use of alcohol and tobacco, and incidentally taking up antivaccination and antivivisection. A few quotations give an insight into the value of such pragmatic psychology:

> A comprehensive antipathy to alcohol and tobacco is expressed in the verdict that places them in the index expurgatorium of drugs, and speaks of the indulgence in their use, however moderate or occasional, as a drug habit. It allies them with cocain, morphin, opium, and similar psychic poisons, and once reaching the term "poison" has seemingly proved its case. This is certainly a striking example of the danger inherent in assuming an intolerant attitude toward a practice admittedly open to serious danger in its abuse; it also illustrates that such danger is not theoretical but wofully real in the American situation and temperament. In this aspect it is akin to the similarly expressed extreme antagonism to the use of drugs in any form, for any purpose. The exponents of drugless healing illustrate the menace of conviction when it is undiscriminating in its premises and uncompromising in its conclusions. It is wrong—the argument goes—to administer drugs; for drugs are unnatural, and many of them are poisons. Cults, such as Christian Science and Dowie's Zionism, are inspired by such argument; and the appeal is ever to the obvious examples of excess, the victims of drug habits that obsess and possess them to their undoing. Let children die through neglect of available treatment; let the pangs of disease and the tortures of injured tissues bring suffering to the full; let pestilence spread; but let us adjure drugs at whatever cost!
>
> It is, indeed, pertinent to observe that vivisection, vaccination, and the use of stimulants are essentially medical questions. This does not mean that physicians alone have the right to an opinion on the matter; it does mean that the same methods of scientific study must be applied to them as to all other problems in which the popular judgment must defer to the expert. Of the three, the vaccination question is clearly the most technical, the one in which a positive lay conviction in opposition to an established medical conclusion is most impertinent. Yet in this issue the method of prejudice loses none of its violence, is no more considerate of fact, than in more legitimately controversial matters, in which the nice adjustment of individual liberty and social welfare require a fair hearing of all interests.
>
> All such issues revolve about the claims of sentiment as against reason. The proper appraisal of sentiment must be tactfully as well

as charitably reached. The opposition to vivisection is more intelligible than that which inspires the antivaccinationists. It rests upon a sentiment that is cordially approved, but not as a principle to be followed at any price. In the view of humane men of science, vivisection is amply justified by the benefits which it confers upon the human race; to abandon it or even unduly restrict it would be a costly sacrifice to sentiment.

The following footnote is timely and worth quoting:

> Since these words were written, the occasion for recalling them has arisen. The Red Cross has been sued by the antivivisectionists to prevent the use of one hundred thousand dollars appropriated by the War Council for medical research to relieve suffering and diminish the death rate among war casualties of our own soldiers. A more amazing instance of the menace of intentional ignorance and obstinate prejudice is hardly imaginable. To insist upon a sentimental objection against experiments upon animals at such a critical time in the history of the nation, in brutal disregard of the facts and in impertinent opposition to the expert conviction of medical proof, is as preposterous as it is inhumane. To state that vivisection has brought no benefit to mankind, in face of the overpowering evidence to the contrary, shows the utter blindness to evidence of a convinced sentimental prejudice; to urge that prejudice at this time and thus to cripple the humanitarian efforts that redeem the awful calamities of war shows the complete disregard of humane considerations to which unreason may lead. In the face of this instance of bigoted opinion, the strictures above applied to it seem criminally lenient. Like the delusions of the insane—to which such fanaticism is allied—the distinction between innocent and dangerous beliefs is most treacherous. Society cannot afford an attitude of tolerance; the menace of extreme conviction is too serious.

The tenth chapter concerns the feminine mind. The final chapter discusses militarism and pacifism, and is a strong argument for a conservative opinion.

The reviewer has taken considerable space for elaborate quotations because it is the easiest, and perhaps the best way, to let the reader know the character of this book. Professor Jastrow's essays may be regarded as one of the most practical contributions to everyday psychology that has appeared for a long time. His book is one that will be appreciated by every physician who is interested—what physician is not?—in the broad subject of the influence of thought on the body and on human actions.

THE PSYCHOLOGY OF BEHAVIOUR. A Practical Study of Human Personality and Conduct with Special Reference to Methods of Development. By Elizabeth Severn. Cloth. Price, $1.50 net. Pp. 349. New York: Dodd, Mead & Co., 1917.

The author says that extensive or careful analysis of "human nature" has in the past been left to the great philosophers and moralizers, and that psychology has long been taught after a fashion in the universities; but as the habit of academicians is to stick tightly to what is called "positive science," it has been left to the general public to voice its want of something more vital and applicable in this field. She therefore has become one of the self-appointed leaders in the "movement of applied psychology." By this she means the psychology of behavior not only as the result of the training and control of the intellect, the memory, the will, the imagination, the emotions, etc., in the building of character and a forceful, efficient personality, but also as applied to the improvement of the physical functioning of the body and consequently the health, and even for the cure of disease, for she is a practicing psychotherapist and has written a book on the subject. She is a believer in cure by taking thought, and defends the rise of the numerous cults that have this as their purpose, including, perhaps, "Christian Science," though she does not use the term. The subconscious mind, she believes, is a wonderful power which can to a great extent be utilized and its processes controlled for the undoubted benefit of the individual, including the cure of his bodily infirmities. Enough said!!

THE TECHNIQUE OF PSYCHOANALYSIS. By Smith Ely Jelliffe, M.D. Nervous and Mental Disease Monograph Series No. 26. Paper. Price $2. Pp. 163. New York: Nervous and Mental Disease Publishing Company, 1918.

This publication is the twenty-sixth nervous and mental disease monograph that has been edited by Drs. Jelliffe and White. It is probably unlikely that any one could learn a satisfactory technic of psychanalysis from any amount of reading; only practical clinical experience can enable one to undertake work of this character. Dr. Jelliffe's book points the way for the beginner to the literature of the subject, its history, the basic methods and the possibilities.

Medicolegal

Judgment for Defendant Reversed in Action for Compensation

(Rosenthal v. Greenberg (N. Y.), 168 N. Y. Supp. 488)

The Supreme Court of New York, Appellate Term, First Department, in reversing a judgment that was rendered in favor of the defendant, says that the plaintiff sued to recover for medical services rendered to two of the defendant's employees, named Quinn and Berkowitz, injured while in the defendant's employ. The plaintiff testified that prior to rendering any services for Quinn he called the defendant on the telephone and asked him about treating Quinn, and the defendant said: "I should go right ahead and treat the patient; when I get through, I should send him the bill." As to the treatment of Berkowitz, the plaintiff testified: "He was sent to my office. After I treated the patient, . . . I rang up Harry Greenberg (the defendant), and he said he was insured, and to treat the patient right along, and send him the bill when he got through. (Question) And he said he would pay for it? (Answer) Yes, sir. (Question) How much? (Answer) There was $25 for that bill, one visit and five surgical dressings." The defendant did not dispute these conversations; he admitted being called up, but contented himself with saying that he did not remember what he did say to the plaintiff on these occasions. It therefore stood undisputed that the defendant promised to pay for the plaintiff's services, and there was no dispute as to the rendition or value of them. It was also clear that in the case of Berkowitz there were at least five surgical dressings given him after the promise to pay was made by the defendant. There should be a new trial, and one is ordered, with $30 costs to the plaintiff to abide the event.

Liability for Malpractice Aggravated by Negligence of Patient

(Schultz v. Tasche et al. (Wis.), 165 N. W. R. 292)

The Supreme Court of Wisconsin affirms a judgment in favor of the plaintiff for $2,000 damages for alleged malpractice by the defendants in the treatment of a fracture of the femur of the plaintiff's right leg, although the jury found that there was a failure on her part to use ordinary care which contributed to produce the deformity and shortening of her leg. The court says that its later decisions are to the effect that negligence on the part of a plaintiff in the care of his injury which follows and aggravates negligent treatment by a physician, or aggravation from other causes not due to the physician's treatment, does not bar recovery. In such cases the plaintiff may recover for the injury resulting from the negligent treatment of the physician, but not for that resulting from his own negligence or from other aggravating conditions.

In this case the plaintiff's want of care consisted chiefly, if not entirely, in conduct by her after she left the hospital, and perhaps in her leaving prematurely. At any rate all these acts of hers took place after the defendant's negligent treatment was administered. It is not strictly correct to call such later negligence on the part of a patient contributory negligence, though it has been so styled in the books. It is rather subsequent or supervening negligence that aggravates the improper condition due to the physician's prior negligence. The two do not synchronize in producing the injury as they usually do in the ordinary negligence case. The cause of action for the physician's negligence may be complete and accrue before the negligence of the patient comes in to aggravate the result. When it does occur its consequences go in mitigation of damages, not in bar of the action. On the question of damages the trial court instructed the jury that they must distinguish between the defendant's negligence, if any, and the plaintiff's negligence, if any, or a result due to any other cause than the defendant's negligence, and assess damages for the improper result due to the defendant's negligence. This correctly expressed the law on the subject. The contention that the jury could not distinguish the results between the negligence of the two parties was not without merit. But this court apprehends that it is no more difficult to separate the results of the two negligences than it often is to determine the results of the defendant's negligence alone, or how much money will compensate for a given result in a particular case. Such difficulties are inherent in the subject-matter dealt with, and courts and juries must wrestle with and solve them as best they can. In most cases there can be no mathematical or demonstrable certainty arrived at. Reasonable certainty is all the law requires, and is all that can usually be attained. The fact that the jury gave the plaintiff, a girl, 19 years of age, whose right leg was shortened an inch and a half, bowed out, caused her pain and lameness, and, so far as the evidence disclosed, would permanently remain in that condition, only $2,000, convinces the court that they made adequate allowance for her contributory negligence in mitigation of damages. If the judge inadvertently omitted to enumerate some of her negligent acts in his instructions, as was claimed, the jury evidently remembered them.

A nonsuit was properly denied as to the defendant Reich. From the evidence the jury might find that the greater part of the malpractice was complete before the plaintiff requested to leave the hospital; that it consisted in a failure to put the ends of the bone in apposition, and so retain them till a firm enough union was obtained to prevent them from overriding. There was evidence from which the jury might find the splints were prematurely removed, causing damage. Dr. Reich took part in those treatments. The fact that he did not know the plaintiff left the hospital was not very significant on the question of his liability in view of the other evidence in the case.

Construction of School Health Law

(Beard v. Webb (Calif.), 169 Pac. R. 927)

The District Court of Appeal of California, Third District, undertakes the construction of something of the scope of Chapter 598 of the Statutes of 1909, an act to provide for health and development supervision in the public schools of California, considered in connection with Subdivision 21 of Section 1617 of the Political Code approved subsequent to the approval of Chapter 598. The court says that Section 1 of Chapter 598 provides.

> Boards of school trustees and city boards of education are hereby authorized to establish health and development supervision in the public schools of this state, and to employ an examining staff and other employees necessary to carry on said work and to fix the compensation for the same. Whenever practicable the examining staff for health and development supervision in the public schools of the state shall consist of both educators and physicians.

Section 2 enumerates the purposes of supervision, one of them being:

> To secure the correction of developmental and acquired defects of both pupils and teachers which interfere with health, growth and efficiency, by complete physical examination. Said examinations shall occur annually or as often as may be determined by the board of school trustees or city board of education.

Section 3 provides for the qualifications of the examining staff.

The subdivision of the political code referred to authorizes the boards of education "to give diligent care to the health and physical education of pupils and where sufficient funds are provided by district taxation, to employ properly certified persons for such work."

The contention of the respondent, county superintendent of schools of Sacramento County, seemed to be: (1) That under the act of 1909 the board of education is empowered to employ only an examining staff consisting of educators and physicians and employees thereof, and that the board has no authority to employ any one else, independently of an educator or physician, to contribute to the health and development of the pupils and teachers of the public schools, although the special work for which such person is employed may be foreign to the services usually and properly performed by an educator or physician; and (2) that a board of education must carry out and execute all the purposes of health work as defined in said act or be precluded from doing any such work at the expense of the district. But the court thinks it may be epitomized that while the law provides for the employment of an examining board and defines the qualifications of its members, it also authorizes the board of education to employ suitable persons licensed by the state to do special work for the purpose of promoting the health and efficiency of the pupils, that discretion is vested in the board of education to adopt the entire scheme provided in said law or only a portion of it, keeping in view the necessities of the situation and the financial ability of the district and the commendable and useful purpose of the law, and that nothing was shown in this case to indicate a violation by the board of education of the city of Sacramento of any provision of the statute, in employing the petitioner, a licensed optometrist, to examine pupils of the public schools of said city to discover any visual defects of said pupils in order that such defects, if existing, might be corrected. Wherefore the court holds that the respondent refused to perform a plain ministerial duty in refusing to draw her requisition on the county auditor in favor of the petitioner for the payment of salary due the latter for the month of July, 1917, and that a writ of mandate must be issued requiring such requisition to be drawn. A rehearing was denied by the Supreme Court of California.

Insufficient Evidence of Malpractice Causing Death of Child

(Henline et ux. v. Southward (Wash.), 169 Pac. R. 315)

The Supreme Court of Washington, in affirming a judgment in favor of the defendant, says that the plaintiffs Henline sued him for damages, charging that the death of their newborn child was due to his negligent acts and omissions when employed to attend Mrs. Henline in childbirth. The court says that at the close of the plaintiffs' evidence the defendant challenged its legal sufficiency and moved for a directed verdict, which motion was granted by the trial court, and judgment rendered dismissing the action. The first error assigned by the plaintiffs was the rejection by the court of their offer to prove by expert testimony that the symptoms displayed by the dying baby would indicate that it was suffering from water taken into its lungs while lying face downward on the bed of its delivery, following shortly after the bursting of the water sac in the mother, and that immediate steps should have been taken by the attending physician to remove the water from its lungs; but there was no satisfactory evidence establishing that cause of death as a basis for predicating such a hypothesis for the admission of expert testimony.

The main contention of the plaintiffs was that the trial court erred in withdrawing the case from the jury on the defendant's challenge to the sufficiency of the evidence. The evidence on behalf of the plaintiffs tended to show that Mrs. Henline, being about seven months advanced in pregnancy, was suffering pains, and the defendant was summoned to attend her. He arrived about half an hour after the summons and found a nurse already in attendance. After making an examination of the patient, he stated that the water would break in half or three quarters of an hour and that a rubber sheet should be placed on the bed. The patient was made to lie down on the bed and told to remain very still, and the nurse was instructed not to help her. After spending fifteen or twenty minutes with the patient, the defendant departed, saying that he would return in half an hour. He did not return until after the lapse of nearly an hour. The water broke within half an hour after his departure, and the baby was born four or five minutes later. It was apparently normal and fully developed for its period of pregnancy, of about 6 pounds weight, and uttered a natural cry shortly after delivery, but soon began to choke and froth at the mouth, at the same time becoming black in the face. It died in about five hours. The defendant returned to the house about half an hour after the birth of the child, noticed that the baby in the hands of the nurse was frothing at the mouth, told her to wipe the froth from its mouth quickly, stated that he thought the child would not live, and then passed to the bedside of the mother. Whether he took any measures for the relief of the child after assuring himself of the satisfactory condition of the mother did not appear from the evidence. The only evidence as to its death being due to strangulation was the testimony of Mrs. Henline that she supposed "it sucked its lungs full of water."

The evidence showed that there was no rubber sheeting to catch the water from the breaking sac; that the water was discharged on the ordinary bedding of sheets, quilts and mattress. There was no proof of water thereon in sufficient quantity to be drawn into the lungs, other than arose from the inference to be drawn from its having been discharged thereon, which was met by an equally justifiable inference that it had soaked into the bedding. The showing of death as having resulted from drawing water into the lungs did not rise above the merest surmise. On the other hand, an expert witness introduced by the plaintiffs testified that the death of the child, according to the symptoms in evidence, might have been due to any one of four other causes. The court is satisfied that there was not sufficient evidence to warrant the submission of the case to the jury.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Denver, Aug. 6-8.
American Ophthalmological Society, New London, Conn., July 9-10.
Idaho State Medical Association, Seattle, July 17-19.
Montana Medical Association, Butte, July 10-11.
Washington State Medical Association, July 10.
Wyoming State Medical Society, Casper, Aug. 7.

THE AMERICAN ASSOCIATION OF ANESTHETISTS

Sixth Annual Meeting, held in Chicago, June 10-11, 1918

Acting President, DR. ALBERT H. MILLER, Providence, R. I., in the Chair

The Operative Risk in Cardiac Disease

DR. F. A. WILLIUS, Rochester, Minn.: Patients whose hearts allow them to go about in comfort, or those in whom this can be effected by medical treatment, are generally considered safe for operation. In heart disease due to focal infection, such gratifying results follow the removal of the focus that the risk of operation seems justified. Another group of cases often shows marked cardiac improvement, sufficient fully to justify operation, namely goiter, uterine fibroids and prostatic hypertrophy. Malignancy complicated by heart disease is generally considered operable if a fair chance of recovery is offered.

In every case the decision is based on several factors: (1) the immediate operative risk; (2) the probable improvement of the heart following operation; (3) the patient's relative chance for length of life or health with or without operation, and (4) in less serious conditions whether or not the operative relief will justify the added risk. Experience, in general, has justified the taking of risks in cases demanding surgical intervention.

It is impossible to classify cases on a basis of valvular disease alone because the true index of cardiac efficiency is mycardial quality, and this varies greatly in similar disease conditions. A classification based on cardiac reserve alone is also impossible because we have no accurate means of determining this factor, and clinical impressions are variable.

Six groups of cases have been studied: (1) auricular fibrillation; (2) auricular flutter; (3) impaired auriculoventricular conduction; (4) impaired intraventricular conduction (arborization block); (5) mital stenosis, and (6) aortic lesions, including valvular disease, aortitis and dilatation (not aneurysmal). These are generally recognized as bad risks or the worst risks, if angina pectoris and aneurysm are excepted.

The best measure of operative risk is a good clinical impresion of the patient's ability to withstand physical strain, supplemented by a careful history and a very thorough examination. Preoperative medical therapy and rest combined with surgical and medical correlation after operation is of paramount importance. The tendency is to require too great a margin of cardiac safety in surgical work. So far as the anesthesia is concerned, we have found the open drop-method of ether safe, efficient and satisfactory. Skilfully given it does not seem to add any measurable hazard to the risk of life involved even in the handling of thyrotoxic cardiopaths.

DISCUSSION

DR. W. HAMILTON LONG, Louisville, Ky.: Is any variety of agents or different methods of anesthesia employed in the several classes of cardiac risks?

DR. F. A. WILLIUS: In our clinic, ether by the open drop method is the routine anesthetic in all cases of major surgery. Our results seem to show that ether does not exert a detrimental effect on cardiac risks who have had proper care in preparation. Provided the trauma of the operation is not increased by etherization to the point of depression, the anesthetic, if it has any appreciable effect, is beneficial.

Instruction in the Pharmacology of Anesthetics

DR. TORALD SOLLMANN, Cleveland: Students should analyze the action of anesthetics, their modification by asphyxia, hemorrhage and sensory reflexes, the phenomena of fatalities, and the possibilities of treatment. These subjects, therefore, can be studied to the best advantage in the course of experimental pharmacology or pharmacodynamics. The instruction in pharmacology should be planned with a view to its future practical application, and should at least outline the problem of clinical anesthesia.

Postoperative Pneumonitis

DR. A. C. WHIPPLE, New York: This report is based on a study of ninety-seven cases of postoperative pneumonitis occurring among 3,719 postoperative patients with a mortality of 2.3 per cent. Many pneumonias are discoverable by the roentgen ray long before frank signs of consolidation appear. These patients show a rise of temperature within forty-eight hours after operation, unaccompanied by a chill. There is usually a moderate cough. The temperature continues high for a day or two and then drops by lysis. During the first few hours of the initial high temperature the roentgenogram shows a shadow in the lungs, usually in one of the lower lobes. At this time the only physical signs are dulness with diminished breath sounds. Bronchial breathing does not appear until twenty-four hours after the appearance of the shadow and after the drop in temperature.

These pneumonias are due to the Type IV pneumococcus, the variety that has been found to be fatal only rarely. This type usually occurs in the mouth of otherwise healthy persons, who have recently had or are suffering from an ordinary cold. Patients who have recently had a cold, unless in extreme urgency, should not be operated on until every evidence of such a cold is past.

It is equally as important to guard the patient from catching cold after the operation, as many postoperative pneumonias are due to careless exposure of patients after their removal from the operating room. In view of the irritant effect of ether on the respiratory mucous membrane, ether should not be used whenever there is the slightest evidence of infection of any portion of the respiratory tract.

DISCUSSION

DR. JOHN SEYBOLD, Denver: Dr. Whipple did not emphasize sufficiently the danger of postoperative pneumonia precipitated by unqualified anesthetists. If the incidence of postoperative pneumonitis is so great in a hospital supplied with skilled anesthetists, what must it be in hospitals that have not the courage to publish their records? Surgeons should secure the most competent anesthetic service available and see to it that the anesthetists have had the medical education and training that will fit them for this work.

Dr. Isabella C. Herb, Chicago: The incidence of postoperative lung complications seems to be greater after certain operative procedures rather than certain methods of anesthesia. Thus septic cases are most prone to develop postoperative pneumonias. Next in order follow operations on the stomach and gallbladder. We are very careful to maintain body heat during operations and prevent exposure of the patient. Our method of drop-ether does not produce mucus secretion.

Dr. E. I. McKesson, Toledo, Ohio: Conservation of body heat before, during and after operation is essential in the prophylaxis of postoperative lung complications. An operating room temperature lower than 80 F. invites trouble. The most difficult period in the year is between seasons when adequate heat is not always obtainable. The patient should be protected from methods of anesthesia which produce profuse sweating, as in his condition exposure induces cutaneous shock and results in pneumonia.

Dr. W. H. Long, Louisville, Ky.: All anesthetic apparatus should be cleaned thoroughly before being used on another patient, especially when in the previous case mucus secretion has been profuse. Patients can best be protected from exposure by being wrapped in warm blankets before leaving the operating room and being placed in a warm bed.

Dr. W. B. Howell, Montreal, Canada: Dr. Long's point is important, but difficult to put into effect in casualty clearing stations. Surgeons and anesthetists often have to work in sweaters, and no heating facilities are at hand to raise the temperature of the operating theater. Add to these inconveniences the effects of rain and mud, and it is obvious that postoperative pneumonia should be prevalent in casualty clearing station surgery. Postoperative pneumonia, however, in reality is extremely rare, although mucus hypersecretion is the rule.

Dr. E. M. Sanders, Nashville, Tenn.: Oral prophylaxis is absolutely necessary in the preparation of patients for safe anesthesia and successful surgery.

Dr. Riley, Havana, Cuba: While we have many cases of lobar pneumonia in Cuba, we do not have postoperative pneumonia. We use chloroform, but our patients are not chilled, nor is there hypersecretion of mucus.

Blood Pressure as a Guide During Major Operations

Dr. Harold G. Giddings, Boston: Frequent blood pressure readings during anesthesia will do much to indicate the exact condition of the patient during an operation. Blood pressure readings were made in fifty cases. The systolic pressure and pulse rate were noted on admission, before anesthesia and at five minute intervals during operation, or at lesser intervals, to study the effect of changes of posture, trauma to certain structures, ligation of important vessels, and other steps of the operative procedure. Individual blood pressures show slight increase due to excitement, and from 10 to 30 mm. increase during induction of etherization, after which the pressure falls to near the individual's level. The individual level after being reached is maintained rather closely throughout anesthesia, barring changes due to oncoming shock, asphyxia, sudden cerebral anemia, or changes in the patient's position on the table. Certain other factors, such as struggling, depth of anesthesia and manipulation of organs, also influence the pressure to a less degree.

In shock the pressure falls, usually gradually, while the pulse rate rises. In asphyxia, at the outset the respiratory center is stimulated, the breathing is deepened, and the vasomotor center of the medulla is thrown into action and there is a marked rise in blood pressure. This also applies to slighter degrees of deficient oxygenation. In cerebral anemia the pressure phenomena are exactly reversed and the fall is abrupt, very alarming and is accompanied by marked slowing of the pulse rate. This phenomenon occurs most frequently in head operations in the semiupright posture. Change of position to the horizontal or slight Trendelenburg usually restores pressure and pulse rate almost immediately. In our experience the Trendelenburg posture is followed by an almost immediate drop in pressure, though not an alarming curve, and a rather prompt return to the individual level. Keeping patients in this position over considerable lengths of time apparently produces no untoward results.

DISCUSSION

Dr. E. I. McKesson, Toledo, Ohio: Blood pressure ratings should be taken as a routine during all major operations, as they give the most reliable information of the patient's condition and the myocardial reserve. The diastolic as well as the systolic pressure must be taken in order to secure the actual heart load. Pressures, if taken at the proper moment, will show a fall before there is a rise in the pulse rate. If the heart is compensating, the pressures must also rise; otherwise collapse must result. Except in spinal anesthesia, the Trendelenburg posture should never be used to the extreme degree. I seldom allow its use beyond from 10 to 15 degrees. It may lower blood pressures to the shock point. I am convinced that there is no anesthetic now in use that will raise and maintain blood pressure.

Dr. R. M. Waters, Sioux City, Iowa: I have noted peculiar falls in pressure associated with changes in posture. One such marked instance was a change from the extreme lithotomy to the horizontal posture. It was very striking.

Dr. W. B. Howell, Montreal, Canada: Is there any drug or method of stimulation that can be used as a routine and depended on to restore and maintain blood pressure and counteract shock?

Dr. E. I. McKesson: No drug or method is uniformly successful or dependable. Patients coming out from under the influence of an anesthetic may faint, thereby stimulating collapse or shock.

Experiences of an Anesthetist at the Front

Dr. W. B. Howell, Montreal, Canada: There are in the Canadian Army Medical Corps in England and France an inadequate number of specialists in anesthesia. Private enterprises should supply modern anesthetic equipment. The McGill University Unit received $1,000 for this purpose. Specialists in anesthesia should be detailed to teach the most approved methods and to make suggestions as to the organization of proper anesthetic services. Young medical officers should be kept on anesthetic duty continuously for three months and have their work properly supervised. Every expert anesthetist sent overseas means the saving of a certain number of lives and the prevention of an immense amount of suffering and discomfort. Our gas-oxygen apparatus was especially useful in anesthetizing patients who were in bad condition from gas gangrene, sepsis or shock. It was also very useful in the wards for painful dressings, especially cases of compound fracture of the femur and gunshot wounds of the knee.

Soldiers, as a rule, take large amounts of ether with the open method, and the excitement stage is very unpleasant for the nursing sisters. Closed etherization with nitrous oxid or ethyl chlorid as a preliminary was found much more satisfactory for war surgery. The only drawback is the necessity of cleansing the inhaler. Intratracheal etherization proved entirely satisfactory for certain operations and also when there was a shortage of assistants. The Chevalier Jackson instrument for introducing the tube is ideal for the purpose. The dosimetric method of administering chloroform was the most satisfactory form of anesthesia. It proved very economical, pleasant, safe and free from untoward results, such as vomiting or pulmonary complications. The only drawbacks were the expense of apparatus, slowness of induction and deterioration of the rubber face piece. I have knowledge of three deaths, apparently due to the anesthetic, one under chloroform, one under ether and another under gas-oxygen. While not quite as satisfactory, on the whole, as gas-oxygen, ethyl chlorid serves a useful purpose for short operations and is very convenient and transportable. I saw but little spinal anesthesia used. At the Duchess of Westminster's Hospital at Le Touquet the anesthetist used intravenous ether with good results.

Nitrous Oxid-Oxygen Analgesia in Normal Labor and Operative Obstetrics

Dr. W. C. Danforth, Evanston, Ill.: My observations are based on 663 cases. It is important to administer the gas before the uterine contraction becomes apparent to the patient as pain. The patient breathes in the nitrous oxid for a number of breaths, usually from three to four, occasionally from six to ten, depending on the measure of relief secured. Once in a while it is necessary to give gas throughout the entire extent of the pain. During the second stage it is frequently important for the obstetrician to announce the onset of uterine contraction by palpation in order to begin the analgesia soon enough. Gas alone is desirable only when a few breaths suffice for analgesia; otherwise from 5 to 15 per cent. oxygen should be added. Rebreathing is not utilized while the child remains in the uterus. Cyanosis must be avoided, and the patient should not be permitted to lapse into anesthesia, thereby obviating her cooperation or inviting an excitement stage. Analgesia is deepened toward the end of the second stage and at the time of delivery, and ether may be added advantageously during the final pains of delivery, without any of the usual unpleasant effects of etherization. Relaxation is promoted, and certain operative obstetric procedures are facilitated and rendered painless. Analgesia has been satisfactory in about 93 per cent. of the recorded cases. After three years' use and observation of gas analgesia, I feel that this method of pain relief has given the best results we have been able to attain in our maternity division. For perineal repair, episiotomy or other operative obstetric procedures, gas-oxygen, with or without ether, is the anesthetic of choice, if given by a skilled anesthetist. While we have used analgesia for periods exceeding three hours without untoward results, we try to limit it to that period to avoid any deleterious effect on the unborn child.

Combined Anesthesia for Cesarean Section

Dr. J. Clarence Webster, Chicago: I have used local or combined anesthesia in certain cardiac, pulmonary or nephritic cases with complete satisfaction. In my series of more than forty cases, all mothers have survived. One baby died, but this death was due to a defective heart. I am firmly convinced that ether anesthesia is rarely necessary in the performance of either abdominal or vaginal cesarean section.

DISCUSSION OF PAPERS OF DRS. DANFORTH AND WEBSTER

Dr. Ben Morgan, Chicago: I agree with Dr. Danforth. Aided by an expert anesthetist, the obstetrician can be saved several useless hours of attendance. The essential principle of success is anticipating the uterine contraction with the administration of the analgesic. Rebreathing is not as dangerous as supposed, if properly handled. It should never be used to the point of anoxemia. I have found concomitant etherization of value or ether-air a good substitute for the operative phases after gas-oxygen has supplied all requirements for the analgesic period of labor.

Dr. E. I. McKesson, Toledo, Ohio: Patients can be trained to accept and manipulate analgesia. They will adapt their breathing to the requirements of the analgesia. There is no cause for cyanosis even with some rebreathing. In some cases cyanosis will persist, irrespective of rebreathing or oxygenation, and in such cases cardiac incompetence is usually present. I have found gas-oxygen anesthesia entirely satisfactory for cesarean sections, but profound anesthesia must not be used as it is harmful to mother and child. The mother may be rendered anoxemic, the child cyanotic, and the uterus may be paralyzed. Section should be done under light anesthesia, and immediately after incision of the abdomen pure oxygen should be given for two or three breaths. This assures enough oxygen to the child. When the child is born, the anesthesia is resumed for whatever remains to be done. I have not found it necessary to use concomitant etherization with gas-oxygen for forceps deliveries.

Dr. Orval J. Cunningham, Kansas City, Kan.: I have found the self-administration method of obstetric analgesia very satisfactory with gas-oxygen. The method can be continued until the patients want to pull down, at which time the anesthetist takes over the administration.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Medical History, New York

October, 1917, **1**, No. 3

1 Figurations of Skeletal and Visceral Anatomy in Books of Hours. W. M. de Voynich and F. H. Garrison.—p. 225.
2 Babylonian—Assyrian Medicine. M. Jastrow, Jr., Philadelphia. —p. 231.
3 Greek Charm Used in England in Twelfth Century. C. Singer, Oxford, England.—p. 258.
4 Legislative and Administrative History of Medical Department of U. S. Army During Revolutionary Period (1776-1786). W. O. Owen.—p. 261.
5 Military Sanitation in Sixteenth, Seventeenth and Eighteenth Centuries. C. L. Heizmann, San Francisco.—p. 281.

Archives of Pediatrics, New York

May, 1918, **35**, No. 5

6 Consideration of Complications of Poliomyelitis and of General Treatment of Acute Stage. J. G. Regan, Brooklyn.—p. 257.
7 Laboratory as Aid in Diagnosis of Diseases of Children. A. G. Mitchell and F. C. Narr, Philadelphia.—p. 273.
8 *Direct Laryngoscopy in One Hundred and Eighty-Nine Cases of Croup. R. W. Gover, New York.—p. 281.
9 Congenital Unilocular Cyst of Liver (Hemangioma). Report of Case and Review of Literature. H. Lowenburg, Philadelphia. —p. 285.

8. **Direct Laryngoscopy in Croup.**—In Gover's opinion, there is no other method nearly as accurate in the diagnosis of laryngeal diphtheria as the direct laryngoscopic examination. Of the 189 cases examined by him by direct laryngoscopy 112 had membrane visible in the larynx while in 77 there was none. While the degree of croup was more frequently severe in the membrane than in the nonmembrane cases, yet in more than one fourth of the cases showing membrane the croup symptoms were mild, while in one sixth of the group not showing membrane, the symptoms were severe. The duration of croup was slightly longer in the membrane than in the nonmembrane cases. Of the 112 membrane cases 36 were subsequently intubated, while of the 77 not showing membrane 1 was subsequently intubated, and this one showed slight ulceration, as if there had been membrane present. Twenty-six of these cases had membrane above the cords only, 20 membrane below only, while 66 had membrane above and below. Membrane was noted on the epiglottis only five times. Membrane in the larynx seems to be much thinner and less firmly attached than that in the nose or fauces. In 29 cases membrane was removed from the larynx with forceps, and in 23 of these there was marked relief, although in only 14 was the relief permanent, while in 6 there was no appreciable effect.

After the removal of loose membrane there was no bleeding in most cases and very little in any. Only slight ulceration was apparent at the site. There did, however, seem to be a tendency toward edema in the cricoid region after the membrane had been removed. Sixty-three of the 112 membrane cases had appreciable stenosis, while it was present in only 11 of the 77 nonmembrane series. This latter was due to subglottic swelling. Of the 77 cases with no membrane in the larynx, 20 had membrane in the fauces. This would not influence the treatment in regard to antitoxin, but would in regard to intubation. In 51 cases cultures were taken from the larynx. Of those with membrane 26 were positive and 8 negative, while of those without membrane 13 were negative and 6 positive. Of the 6 positive culture cases, 5 showed membrane in the fauces. The mortality from all causes of the 112 membrane cases was 22, while that of the 77 nonmembrane was 5. The mortality of the 36 intubated cases was 11. The 1 intubated case of the nonmembrane group died. The cause of death in the 5 nonmembrane cases was faucial diphtheria and bronchopneumonia in 2; bronchopneumonia in 2; measles and bronchopneumonia in 1. The mortality was about twice as high for the cases with membrane in the larynx and fauces as it was for those with membrane in the larynx alone.

Boston Medical and Surgical Journal

June 13, 1918, 178, No. 24

10 Army Tuberculosis Examinations. H. Gray, Boston.—p. 799.
11 *Study of Physical Condition of One Thousand Delinquents Seen in Court. V. V. Anderson and C. M. Leonard, Boston.—p. 803.
12 Identification of Soldiers after Death by Head Measurements. A. MacDonald, Washington, D. C.—p. 807.
13 Pathologic Classifications of Pulmonary Tuberculosis. H. F. Gammons, Carlsbad, Texas.—p. 809.
14 Idiopathic Epilepsy. E. A. Tracy.—p. 810. To be continued.

11. Study of Physical Condition of Delinquents.—The purpose of the study made by Anderson and Leonard was to determine what part—if any—routine physical examinations might play in the disposition of a delinquent's case in court, and later in the institution of reconstructive measures while on probation. The vital importance of the physical condition in this connection, particularly in relation to his economic efficiency, his ability to support himself, cannot be overestimated. Exhausting physical diseases can so impair one's economic efficiency, so hamper one's ability to earn a living, as to render him a social misfit, causing him to drift from place to place, lowering his resistance to alcohol, drugs and such. It is clearly the duty of those having to do with delinquents to see to it that these conditions are sought out and treated, if such persons are to be returned to the community.

With the aim in view of showing the practical relationship of such facts as those above mentioned, to the routine work of the court, records of the last 1,000 cases examined were taken from the files, and the physical condition of each person noted, also the relationship which his physical condition bore—if any—to his economic efficiency. Six hundred and sixty-eight persons, or 66.8 per cent., of the persons were in good or fair health. Three hundred and forty-two persons, or 34.2 per cent., were in poor or bad health, and in such physical condition as to warrant urgent medical treatment. A study of immoral women, made by the authors, showed that 44 per cent. of the women were in poor or bad physical condition from diseases other than venereal (tuberculosis, asthma, Bright's disease, heart disease, etc.).

Of the 1,000 delinquents, about 626, or 62.6 per cent., were considered self-supporting while 374, or 37.4 per cent., were not self-supporting. Some correlation between the two sets of figures seems evident. Thirty-five per cent. of those found to be in good or fair physical condition had been steadily employed, while only 2 per cent. of those found to be in poor or bad physical condition had been steadily employed. Eighty-five per cent. of those found to be in good or fair physical condition had been and still were self-supporting, while only 18 per cent. of those found to be in poor or bad physical condition had been and were still self-supporting. Ninety-six per cent. of those regularly employed were found in good or fair physical condition, while only 3 per cent. were found to be in poor or bad physical condition. Eighty-six and three-tenths per cent. of those who were rated as "never worked" were found to be in poor or bad physical condition, while only 13.7 per cent. were found to be in good or fair physical condition.

Six hundred consecutive cases were examined for venereal infection. Forty-seven per cent. of these persons were suffering from one or both of these diseases. An additional 4.5 per cent. had doubtful blood and smears. Practically every other person in this group had syphilis or gonorrhea, or both conditions. Without a routine medical examination there is no safe and sane method of determining in court whether a person is free from venereal infection. These conditions are not, as is generally supposed, limited to purely chastity offenders, they are widely scattered among all classes of offenders. Three hundred and three cases were so-called offenders against chastity; of these 57.4 per cent. were suffering from syphilis or gonorrhea, or both. An additional 4.9 per cent. had doubtful bloods and smears. There were 134 cases of drunkenness; 38.8 per cent. of these persons had venereal disease, while an additional 6.5 per cent. were doubtful cases. There were 112 cases of larceny; of these persons 32.9 per cent., or one out of every three cases, had syphilis or gonorrhea, or both. There were seventeen persons arrested for possession of drugs, and 53 per cent. had venereal disease. There were three arrested for violating the liquor law, two of whom had syphilis. Three were arrested for assault and battery; all three had venereal disease. The conclusion reached from this study is that venereal disease is not limited to any one type of offender in court, but is found common among all classes of delinquents, and that a policy calling for a more routine investigation of the physical condition and the possibilities of each offender, prior to his disposition, would seem justifiable.

Colorado Medicine, Denver

June, 1918, 15, No. 6

15 Cases of Congenital Dislocation of Hip. G. B. Packard, Denver.—p. 138.
16 Experience with Newer Treatment of Burns. O. M. Shere, Denver.—p. 141.
17 Internal Jugular Resection; Operation for Lateral Sinus Thrombosis Following Radical Mastoid Operation. T. J. Gallaher, Denver.—p. 145.
18 Relapsing Fever Endemic in Colorado. J. J. Waring, Denver.—p. 148.

Georgia Medical Association Journal, Augusta

June, 1918, 8, No. 2

19 Ectopic Pregnancy Specimen — Unruptured. G. W. Quillian, Atlanta.—p. 29.
20 Cesarean Section—Midget. R. C. Woodard, Adel.—p. 34.
21 Chronic Appendicitis in Young Children. B. Moore, Atlanta.—p. 35.

Journal of Experimental Medicine, Baltimore

June, 1918, 27, No. 6

22 Effect of Painting Pancreas with Epinephrin on Hyperglycemia and Glycosuria. I. S. Kleiner and S. J. Meltzer, New York.—p. 647.
23 Spirochetal Flora of Normal Male Genitalia. H. Noguchi, New York.—p. 667.
24 *Physiologic Stimulation of Choroid Plexus and Experimental Poliomyelitis. S. Flexner, H. L. Amoss and F. Eberson, New York.—p. 679.
25 Autodigestion of Normal Serum Through Action of Certain Chemical Agents. S. Yamakawa, New York.—p. 689.
26 Id. S. Yamakawa, New York.—p. 711.
27 *Antibody Production After Partial Suprarenalectomy in Guinea-Pigs. F. L. Gates, New York.—p. 725.
28 *Estivo-Autumnal Malaria. Extracellular Relation of Crescentic Bodies to Red Corpuscle and Their Method of Securing Attachment. M. R. Lawson, New London.—p. 739.
29 *Id. Multiple Infection of Red Corpuscles and Various Hypotheses Concerning It. M. R. Lawson, New London.—p. 749.

24. Stimulation of Choroid Plexus and Experimental Poliomyelitis.—The experiments recorded in this paper serve, in the first place, to confirm the experiments of Dixon and Halliburton on the stimulating effect of intravenous injections of extracts of choroid plexus in the secretion of the cerebrospinal fluid, and extend their observations to monkeys. They bring out also the variable effects of the virus of poliomyelitis, variations affected by the quality of the virus and also by the individual powers of resistance to infection possessed by individual monkeys. The chief outcome of the experiments has been to determine the fact that when the intravenous inoculation of the virus does not in itself suffice to induce infection and paralysis, the intravenous injection of extracts of the choroid plexus, which in themselves excite the secretory functions which preside over the formation of the cerebrospinal fluid, is powerless to modify this result. This fact would seem to be of interest and importance, since it has already been shown that very slight structural changes in the meningeal-choroidal complex suffice to make possible or certain infection under these circumstance. Apparently mere augmentation, from time to time, of the secretory functions of the choroid plexus, through intravenous injection of an extract of the choroid plexus and while the virus is still circulating, is insufficient to insure passage of the virus from the blood into the nervous tissues, on which infection depends. Neither does the augmentation exercise a restraining influence on the development of infection otherwise capable of taking place.

27. Antibody Production After Partial Suprarenalectomy.—By careful aseptic operation Gates found it possible to remove approximately three quarters to seven eighths of the suprarenal tissue of guinea-pigs without causing symptoms of suprarenal insufficiency. Guinea-pigs were immunized to *Bacillus typhosus* or to hen corpuscles at varying intervals before or after the operation, and the curves of antibody formation traced for two to three months after immunization. Comparisons with the antibody curves of control animals similarly immunized fail to show that the suprarenalectomy had any influence on the rise or persistence of antibodies in the blood. For the purposes of the study it was not deemed necessary to produce an acute suprarenal insufficiency. If the suprarenal glands were the site of antibody formation or played an essential part in immunity processes, it does not seem probable that the small remainder of suprarenal tissue left in situ to sustain life would affect quantitatively the antibody response to a given antigen injection as do the entire normal glands. Gates, therefore, interprets the experiments to indicate that not only are the suprarenal glands not one of the important sources of typhoid agglutinins, or of hemagglutinins or hemolysins, but they play no essential part in the mechanism by which these antibodies are produced and maintained in the body.

28. **Crescentic Bodies in Estivo-Autumnal Malaria.**—According to Lawson estivo-autumnal parasites, including the crescentic bodies, are always extracellular; that is, they are attached to the external surface of the red corpuscles. Crescentic bodies attach themselves to the red corpuscles just as the younger parasites do, by encircling, with their cytoplasm, mounds of hemoglobin substance. These hemoglobin mounds may be seen protruding through various portions of the crescentic bodies, as well as at the periphery of parasites. The base of the mounds is occasionally outlined by the chromatin or pigment granules. The hemoglobin mounds protruding through the body proper of the crescentic bodies do not seem to alter the general outline of the parasites. The outline of the parasites may be traced through the transparent mounds. Whenever attaching pseudopodia are observed they are seen to arise from the cytoplasm of the parasites and may be in the form of loops or strings. When the crescents are attached they proceed to dissolve the hemoglobin to make it available for utilization, as similating what is required for nutrition, the waste product being in the form of pigment granules. After the hemoglobin mounds, to which the crescents are attached, have been decolorized by parasitic action, an appearance is obtained which has been described by most observers as vacuolization of the crescentic body. These observers believe the picture to be one of degeneration. The decolorized mounds of vacuoles ("achromatic areas") seen in connection with malarial parasites correspond to the nutrition vacuoles of the common ameba, and possibly the malarial parasite may, like these amebae, secrete reserve food.

29. **Multiple Infection of Red Corpuscles.**—This study by Lawson shows that multiple infection of red corpuscles with young parasites is seen in all malarial infections, but it is found most frequently in the estivo-autumnal infections. The occurrence is accidental and has no significance other than that if the instances are numerous it suggests a heavy infection. In instances of multiple infection the young parasites may be seen to be attached: (*a*) each encircling its own corpuscular mound, giving the typical ring form picture, or (*b*) two or more encircling one corpuscular mound, giving the appearance of a single ring with two or more masses of chromatin. Certain hypotheses as to the conjugation of malarial parasites have been formulated by observers to explain various instances of multiple infection. Lawson does not believe that conjugation ever occurs. She believes that these hypotheses resulted from observation of certain appearances presented by the attached parasites, as when they are attached so closely together that they may appear to be adherent, or when two or more are attached to one corpuscular mound, giving the appearance of a single parasite with more than one mass of chromatin.

Certain appearances have also been described as a precocious division of the chromatin masses of young parasites. In these instances the chromatin granules were usually described as varying in size. Such an appearance may be explained as follows: (*a*) two young parasites in varying stages of development may encircle one corpuscular mound, the cytoplasm of one parasite being superimposed over that of the other parasite, giving a picture of a single ring with two unequal masses of chromatin; or (*b*) the variation in the size and number of the chromatin masses may be the result of traumatism, as the nuclei of young parasites are rather easily broken up. Multiple infection of red corpuscles with crescentic bodies is considered rather a rare occurrence. It is always accidental, and if the instances are numerous it means a severe infection. When one accepts the fact that all malarial parasites are attached to the external surface of the red corpuscles, the biologic and morphologic characteristics of the parasites cease to be obscure.

Journal of Immunology, Baltimore

March, 1918, **3**, No. 2

30 Studies on Antitrypsin of Serum. B. Fujimoto, Tokyo, Japan. —p. 51.
31 Constancy of Protein Quotient During Intensive Digestion and Prolonged Starvation. S. Hanson, San Francisco.—p. 67.
32 *Immunologic Properties of Uveal Pigment. A. C. Woods, Philadelphia.—p. 75.
33 Examination of Blood Preliminary to Operation of Blood Transfusion. A. F. Coca, New York.—p. 93.
34 *Experiments on Passive Transfer of Antibodies from Blood to Cerebrospinal Fluid. J. A. Kolmer and S. Sekiguchi, Philadelphia.—p. 101.
35 Isolation, Purification and Concentration of Immune Bodies; Study of Immune Hemolysin. M. Kosakai, Tokyo, Japan. —p. 109.
36 *New Method of Estimating Antitryptic Index of Blood Serum. T. B. Robertson and S. Hanson, San Francisco.—p. 131.
37 Noninfluence of Injections of Trypsin on Protein Quotient in Blood Serum. S. Hanson, San Francisco.—p. 139.
38 Effects of Intravenous Injections of Colloid (Gelatin), on Rabbit Serums. G. W. Clark, San Francisco.—p. 147.

32. **Immunologic Properties of Uveal Pigment.**—Woods claims that the pigment of the uveal tract of the eye possesses the properties of acting as antigen in homologous animals, and in its immunologic reactions is organ specific and not species specific. These findings can be demonstrated by the complement-fixation reaction with the serums of properly immunized animals, and by perfusion experiments on the eyes of sensitized animals. In the case of the perfusion experiments, the anaphylactic reaction is manifested by a marked contraction of the pupil, and the occurrence of small hemorrhages in the fundus. This reaction was used to study the antigenic properties of uveal pigment, and the results shown by complement fixation confirmed

34. **Passive Transfer of Antibodies from Blood to Cerebrospinal Fluid.**—The removal of blood from normal dogs followed by the intravenous injection of human syphilitic serum in amounts varying from 30 to 50 c.c. per kilogram of body weight was followed by the presence of small amounts of syphilis reagin (the antibody concerned in the Wassermann reaction) in the cerebrospinal fluid. The reagin was found in the cerebrospinal fluid as early as three hours after transfusion with syphilitic serum. After irritation of the spinal meninges by the preliminary injection of sterile horse serum the amount of reagin gaining access to the cerebrospinal fluid after transfusion of syphilitic serum appeared to be somewhat greater. All traces of syphilis reagin in the cerebrospinal fluid of dogs following transfusion of human syphilitic serum apparently disappeared after twenty-two to forty-eight hours as determined by completely negative Wassermann reactions.

The intravenous injection of dog typhoid immune serum into a normal dog in amount of about 30 c.c. per kilogram of body weight, was followed by the appearance of traces of agglutinin in the cerebrospinal fluid within three hours after transfusion; fluid removed forty-eight hours later was free of agglutinin. These experiments demonstrate the possibility of the passage of antibody from the blood into the cerebrospinal fluid without primary involvement of the central nervous organs or injury to the mechanism concerned in the production of cerebrospinal fluid, when the amount of antibody in the blood has reached a point of high concentration. While it is possible that in human syphilis the presence of traces of reagin in the cerebrospinal fluid may be due to the passive transfer of this substance from the blood, as shown by Wile and Stokes, the presence of the reagin with or without other changes in the fluid, as an increase of protein and cells usually indicates the presence and activity of *T. pallida* in the tissues of the central nervous organs.

36. **Antitryptic Index of Blood Serum.**—A simple and accurate method of measuring the antitryptic indexes of blood serums is described by Robertson and Hanson. It is shown that for varying proportions of antitrypsin (= A) added to a specified amount of trypsin (regarded as unity) the relation, $\frac{T}{A\,(1\text{-}T)} = C$, holds good for any given serum, T being the proportion of the trypsin neutralized by the serum and C a constant which is a direct measure of the number of molecules of antitrypsin contained in a specified volume of the serum. The molecular concentration of antitrypsin in blood serum is in great excess of the molecular concentration of proteolytically active material in a 1 per cent. solution of Gruebler's trypsin.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, 1918, **47**, No. 5

39 *Economic Efficiency of Epileptic Patients. M. Ryther and M. Ordway, Boston.—p. 321.
40 Rhizotomy for Relief of Pain. C. H. Frazier.—p. 343.

39. **Economic Efficiency of Epileptic Patients.**—The conclusion reached by Ryther and Ordway from a study of 100 epileptics chosen at random is that their study justifies an experiment in the treatment of epileptics such as has been developed for other handicapped patients, the blind, etc. They suggest small shops for selected groups of patients, where they can be given employment in spite of their attacks; that the patients be chosen from those who are much discouraged about their inability to earn because of attacks and who yet have ability; and that the experiment be a therapeutic rather than an economic one, at present. There seems to be no sufficient reason why shops of this sort should not be undertaken experimentally in connection with the work already established in institutions dedicated to the work of caring for epileptic patients, or even by general hospitals. The authors call attention to the relative success which has attended the efforts of the Massachusetts General Hospital to establish a shop for the physically handicapped, and urge the claims of epileptic patients to similar opportunities. The experience of epileptic institutions seems to have proved that these patients soon get used to witnessing seizures among their fellow sufferers, and that their eagerness to learn to work and to learn is so great that they will endure much to gain these ends. The success of patients with little businesses of their own suggests that some of them might be trained for small home industries either in such a shop or by a visiting teacher.

Journal of Medical Research, Boston

March, 1918, **38**, No. 1

41 Bacteriologic Examination for Meningococcus Carriers. L. D. Bushnell, Manhattan, Kan.—p. 1.
42 *Autotransplantation and Homotransplantation of Uterus in Guinea-Pig. C. Hesselberg, W. Kerwin and L. Loeb, St. Louis.—p. 11.
43 Successive Transplantation of Thyroid Tissue into Same Host. C. Hesselberg and L. Loeb, St. Louis.—p. 33.
44 *Bactericidal Action of Arsenical Compounds on Experimentally Produced Streptococcic Septicemias. C. S. Allison.—p. 55.
45 *Influence of Parathyroidectomy on Gastro-Intestinal Mucosa of Dogs and Rabbits. G. A. Friedman, University, N. Y.—p. 69.
46 Paratyphoid Enteritidis Group: Correlation of Cultural and Agglutination Results; Special Reference to B. Paratyphosus "B" and B. Cholera Suis. C. Krumwiede, Jr., L. A. Kohn and E. Valentine, New York.—p. 89.

42. **Autotransplantation and Homotransplantation of Uterus.**—The authors selected uterine tissue as representative of a mucous membrane. The results were as follows: Soon after transplantation only small parts of peripheral tissue are preserved. Gradually a recovery of shrunken tissue occurs in addition to new formation of tissue through cell proliferation. There are indications that different tissues show a different degree of resistance to the injury caused by transplantation. Unstriated muscle was seen to recover later than epithelial structures and peritoneal endothelium. While after homotransplantation of uterus, as well as of thyroid and kidney, substances (homotoxins) are produced which attract lymphocytes, the lymphocytic reaction is quantitatively stronger after homotransplantation of thyroid and kidney. After homotransplantation of the uterus the homotoxins exert a primary injurious influence on muscle and connective tissue, which suffer directly. The epithelium suffers secondarily, probably as a result of the changes in the stroma, and to a minor extent through the activity of lymphocytes. On the other hand, after homotransplantation of kidney and thyroid, the main injury is inflicted on the transplanted tissue through lymphocytes and (to a less extent) connective tissue cells of the host. In both cases epithelial structures are more resistant and are least injured through the direct influence of the homotoxins. They are injured or destroyed as a result of the attack by the cellular elements of the host. The connective tissue and muscle of the uterus are injured directly through the homotoxins and are only secondarily injured by cells of the host. The differences in the cell proliferation which exist between the normal uterine epithelium, on the one hand, and kidney and thyroid on the other, persist after autotransplantation. It is probable that these differences are due to primary differences in the constitution of these types of cells.

44. **Bactericidal Action of Arsenical Compounds on Streptococcemias.**—Allison's report of his experimental work shows that the salvarsan, diarsenol and arsenobenzol brands of arsphenamin have a marked bactericidal action on different strains of streptococci in vitro, and that these arsenical compounds are of value in the treatment of experimental septicemias due to these organisms. Fifteen different strains of streptococci, representing both the hemolytic and the viridans groups, were used. The ordinary 1:500 dilutions of the drugs were used. It was evident that these agents possess a distinct bactericidal power against virulent strains of streptococci in vitro, in dilutions up to 1:3,000, and an inhibiting power over these organisms for at least twenty-four hours in weaker dilutions. They possess a bactericidal action against streptococci in the blood stream of experimental animals. The success of the treatment depends largely on the virulence of the organisms and on reaching them before they become localized in some remote parts of the animal body. They produced no untoward effects on the animals where the maximum doses were frequently repeated. They possess a possible advantage over antistreptococcic serums in that they do not destroy the bacterial cell and are, therefore, probably less liable to cause the sudden liberation of intracellular toxins. They possess hopeful possibilities for the treatment of streptococcic septicemia in the human subject, as has been shown in a limited clinical experience. The success of the treatment depends on the removal of the source of infection and the administration of the treatment before secondary localization of the infections.

45. **Influence of Parathyroidectomy on Gastric Mucosa.**—Hemithyroidectomy, or removal of one lobe of the thyroid, was performed on ten dogs and ten rabbits. Eight other animals were used for the complete extirpation of the thyroid apparatus. Although it was frequently impossible to spare the parathyroids in the dogs, and almost always impossible in the rabbits, one or more of the parathyroids were left in situ in the majority of the animals. Friedman found that thyroid insufficiency causes in dogs and in rabbits acute ulcers in the stomach, duodenum, and occasionally appendicular lesions. These ulcers do not show a tendency to heal, since permanent constitution anomalies are probably created by thyroidectomy. In man minor degrees of thyroid insufficiency may cause the appearance of the initial lesion of peptic ulcer or appendicitis. Since thyroid insufficiency is probably slighter in man than the animals whose condition is produced experimentally, nature, assisted or unassisted by treatment, may overcome the anomalous constitutions created by lack of thyroid secretion. The chronicity of ulcer is caused by other factors, among which may be mentioned the constant irritation of food on the ulcerated region as the chief factor and the excessive secretion of hydrochloric acid. The primary

lesion of appendicitis is not due to infection in all probability, but to thyroid insufficiency. After the initial lesion has been formed the invasion of bacteria and stagnation of feces will help to develop the various forms of appendicitis. The diminished thyroid secretion in man may be responsible for the association of peptic ulcer and appendicitis. The cooperation of the suprarenals or parathyroids in the causation of the initial lesion is probable. The probable existing relation between them must be a functional one. Friedman is of the opinion that the assumption of a disturbance in the endocrinous glands explains posibly the subtonic and hypertonic type of stomach of peptic ulcer.

Medical Record, New York

June 15, 1918, **93**, No. 24

47 Peptic Ulcer. J. B. Deaver, Philadelphia.—p. 1015.
48 Some Functions of Consciousness. G. V. N. Dearborn, Cambridge.—p. 1018.
49 Routine Method of Examination and Study of Gastro-Intestinal Tract by Roentgen Ray. I. S. Hirsch and I. J. Landsman, New York.—p. 1021.
50 Some Educational Problems of Race Hygiene. E. S. Brodsky, Westport, Conn.—p. 1028.
51 Visceral Lesions of Purpura Hemorrhagica and Acute Articular Rheumatism. A. H. Harrigan, New York.—p. 1033.

Michigan State Medical Society Journal, Grand Rapids

June, 1918, **17**, No. 6

52 Duty of Hour Is Service. A. P. Biddle, Detroit.—p. 249.
53 Medical Work in Camp Custer. C. J. Bartlett, Camp Custer.—p. 252.
54 Differential Diagnosis of Streptococcus, Staphylococcus and Pneumococcus Infections from Clinical Standpoint. J. E. Davis, Detroit.—p. 255.
55 Technic of Taking Blood Pressure. W. R. Vis, Detroit.—p. 260.

Minnesota Medicine, St. Paul

June, 1918, **1**, No. 6

56 Fractures about Joints. B. F. Lounsbury, Chicago.—p. 201.
57 Plea for Cooperation in Venereal Disease Control. H. G. Irvine, Minneapolis.—p. 205.
58 Fractures of Tibia. A. W. Ide, Brainerd.—p. 220.
59 Differential Diagnosis between Anterior Poliomyelitis, Epidemic Cerebrospinal Meningitis and Tuberculous Meningitis. C. C. Pratt, Mankato.—p. 224.

New Jersey Medical Society Journal, Orange

June, 1918, **15**, No. 6

60 Facts Showing Correlation between Tuberculosis and Industry. F. S. Crum, Newark.—p. 181.
61 Tuberculosis. H. I. Goldstein, Camden.—p. 183.
62 Detecting Tubercle Bacilli in Sputum by Use of Antiformin Sputum Cup. M. J. Fine, Newark.—p. 189.
63 Tuberculosis Problem in County of Middlesex. C. I. Silk, Perth Amboy.—p. 191.
64 Laboratory; Its Sphere of Usefulness and Community. R. N. Connolly, Newark.—p. 194.

Ohio State Medical Journal, Columbus

June, 1918, **14**, No. 6

65 Early Diagnosis of Gastric Cancer. W. C. Stoner, Cleveland.—p. 344.
66 Campaign Against Venereal Diseases in State of Ohio. H. N. Cole, Cleveland.—p. 345.
67 Present Status of Diagnosis and Treatment of Acute Anterior Poliomyelitis. A. G. Helmick, Columbus.—p. 347.
68 Is Compulsory Health Insurance Justifiable Measure? C. H. Wells, Columbus.—p. 352.

Oklahoma State Medical Association Journal, Muskogee

June, 1918, **11**, No. 6

69 Early Care of Eye Injuries and Diseases. L. A. Newton, Oklahoma City.—p. 177.
70 Syphilis of Bladder; Report of Cases. W. J. Wallace, Oklahoma City.—p. 186.

New York Medical Journal

June 15, 1918, **107**, No. 24

71 Surgery of Laryngeal Malignancy. H. Arrowsmith, Brooklyn.—p. 1105.
72 Suggestions for Improving Operation for Cataract. M. Talmey, New York.—p. 1108.
73 Clinical Signficance of Intestinal Hemorrhage. F. C. Yeomans, New York.—p. 1115.
74 Pyorrhea Alveolaris from Medical Standpoint. A. L. Benedict, Buffalo.—p. 1119.
75 Treatment of Leg Ulcers. P. G. Skillern, Jr., Philadelphia.—p. 1121.
76 Preparation of Solutions of Salvarsan Arsenobenzol for Intravenous Use. H. Goodman, New York.—p. 1122.
77 Excessive Venereal Rate in U. S. Army. W. T. Belfield, Chicago.—p. 1124.
78 Malarial Fever. F. R. Newman, Wheeling, W. Va.—p. 1126.

Pennsylvania Medical Journal, Athens

May, 1918, **21**, No. 8

79 Function and Apparatus of Equilibration. B. A. Randall, Philadelphia.—p. 491.
80 Clinical Studies in Vertigo. L. Fisher, Philadelphia.—p. 492.
81 Place of Opium in Therapeutics of Infancy and Childhood. J. P. C. Griffith, Philadelphia.—p. 497.
82 Influence of Prenatal Care on Infant Morality. C. H. Miner, Wilkes-Barre.—p. 502.
83 Management of Difficult Cases of Breast Feeding. H. C. Carpenter, Philadelphia.—p. 506.
84 *Constitutional Disturbance of Toxic Goiter as Influenced by Surgical Therapy. C. H. Frazier, Philadelphia.—p. 510.
85 Pus Infections of Anorectal Region. C. C. Mechling, Pittsburgh.—p. 514.
86 Interrelation of Appendicitis, Cholecystitis and Pancreatitis. E. Laplace, Philadelphia.—p. 518.
87 Review of Certain Postulates in Pelvic Surgery. W. R. Davies, Scranton.—p. 521.
88 Hoarseness; Its Relation to Local and General Diseases. J. H. McCready, Pittsburgh.—p. 523.

84. **Toxic Goiter.**—Frazier reiterates that toxic goiter belongs essentially to the domain of surgery, recognizing, of course, certain exceptions. The "nonsurgical" treatment of the toxic goiter is attended with a higher rate of mortality, and, among those supposedly cured, on the patients' return to their normal habits relapses are indeed frequent. Add to this the inevitable complications which follow delay—disturbances of nutrition, permanent organic damage to the structures of the heart, the kidney, the suprarenal, the exhaustion of the nervous system, the exophthalmos and possible loss of vision, the inevitable incapacitation in, if not actual abandonment of, occupation or everyday life work, and we have an array of facts which justifies a positive stand in favor of surgical, as compared with nonsurgical, management of the disease.

Rhode Island Medical Journal, Providence

June, 1918, **2**, No. 6

89 Some Cardiovascular Considerations in Connection with Advisory Draft Board Examinations. G. S. Mathews.—p. 85.
90 Epidemic Meningitis. C. D. Sawyer, Providence.—p. 88.
91 Case of Simultaneous Fracture of Six Long Bones. R. Hammond, Providence.—p. 91.
92 Report of First Case of Pellagra in 1918. H. A. Jones, Howard.—p. 92.

Southwestern Medicine, El Paso, Texas

June, 1918, **2**, No. 6

93 U. S. Government Free Venereal Clinic. V. V. Wood.—p. 6.
94 Medicolegal Aspect of Abortion. W. Wylie, Phoenix, Ariz.—p. 15.
95 Chemical, Thermal and Mechanical Effects of Various Electrical Modalities and Their Therapeutic Value. W. W. Wilkinson, Phoenix.—p. 18.
96 Some Statistics Gathered from Physical Examination of Employees. R. Stroud, Gleeson, Ariz.—p. 23.

Vermont Medicine, Rutland

May, 1918, **3**, No. 5

97 Manual Dilatation, Version and Delivery. J. M. Hackett, Champlain, N. Y.—p. 107.

West Virginia Medical Journal, Huntington

May, 1918, **12**, No. 11

98 Red Cross Is Mobilized Heart and Spirit of People. H. A. Giltner, Parkersburg.—p. 401.
99 Madness of Men and Nations. W. W. Brown, Shenandoah Junction.—p. 405.
100 Treatment of Coughs. A. H. Hoge, Bluefield.—p. 408.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

May, 1918, **21**, No. 4

1 *Treatment of Simple Tertian Malaria. Oral Administration of Quinin Sulphate Daily Over Prolonged Periods. J. W. W. Stephens and others.—p. 309.
2 *Id. Oral Administration of Quinin Sulphate for Two Consecutive Days Weekly Over Prolonged Periods. J. W. W. Stephens and others.—p. 331.

3 *Id. Comparison of Results of Interrupted and Continuous Quinin Administration. J. W. W. Stephens and others —p. 359.
4 *Id. Oral Administration of Quinin Sulphate Grains 120 on Two Consecutive Days Only. J. W. W. Stephens and others.—p. 417.
5 *Id. Oral Administration of Quinin Sulphate Grains 90 on Two Consecutive Days Weekly for Three Weeks. J. W. W. Stephens and others.—p. 421.
6 *Id. At What Time After Cessation of Quinin Treatment Do Relapses Occur? J. W. W. Stephens and others.—p. 425.
7 Detection and Estimation of Quinin in Blood and Urine. W. Ramsden and I. J. Lipkin.—p. 443.
8 Comparative Study of Habits of Glossina Brevipalpis, Newst., G. Fusca, West, and G. Pallidipes, Aust. in Belgian Congo. J. Schwetz.—p. 365.
9 Strongylidae in Horses. W. Yorke and J. W. S. Macfie.—p. 399.
10 Id. Cylicostomum Minutum sp. n. W. Yorke and J. W. S. Macfie.—p. 405.
11 Id. Cylicostomum Nassatum Looss. var. Parvum. W. Yorke and J. W. S. Macfie.—p. 411.

1. Quinin Sulphate Daily in Simple Tertian Malaria.—The authors found that practically all patients were able to take a daily dose of 20 to 30 grains of quinin for eight weeks or more. When, however, the daily dose reached 45 grains it was found that only seven of nineteen patients were able to complete the full eight weeks' treatment. In the remaining twelve the treatment had to be stopped prematurely owing to tremors and vomiting. Of the various forms of continuous treatments used 45 grains per day in 3 doses of 15 grains each was the best.

2. Quinin Sulphate for Two Consecutive Days.—Quinin was given on two consecutive days each week, that is, Saturday and Sunday, over a period of eight weeks or more. All the patients were able to take without difficulty the largest dose of quinin employed, namely, 45 grains (three doses of 15 grains) on two consecutive days weekly. Forty-five grains each day gave the best results.

3. Comparison of Interrupted and Continuous Quinin Treatment.—Careful clinical observation and experimental studies have convinced the authors that the interrupted treatment with quinin, 30 or 45 grains twice weekly, is preferable to continuous treatment, 30 or 45 grains seven times weekly. Forty-five grains twice weekly is better than 30 grains twice weekly or than 30 grains daily, both as a palliative and as a curative treatment.

4. One Hundred and Twenty Grains of Quinin on Two Consecutive Days.—Quinin sulphate, orally, in doses of 120 grains on each of two consecutive days, represents the maximum amount of the drug which can be tolerated by the average patients. The treatment had to be abandoned by the authors owing to severe symptoms in five out of fifteen cases. Relapses occurred in 60 per cent. of the patients who completed the treatment. The results compare unfavorably with those obtained in the 90 grains series, where only 38 per cent. relapsed.

5. Ninety Grains of Quinin on Two Consecutive Days.—Ninety grains of quinin sulphate on two consecutive days weekly over a period of three weeks produces a cure in 50 to 54 per cent. of the patients. These figures are therefore not quite so good as those obtained in the series treated with 90 grains on two consecutive days only, but the slight difference in the result may well be due to the smaller number of patients treated.

6. At What Time After Cessation of Quinin Treatment Do Relapses Occur?—The general conclusion drawn by Stephens and his associates from these observations appears to be that if a case of simple tertian malaria has not relapsed parasitically within four weeks of cessation of treatment, the patient can be discharged from the hospital with a risk of relapse of only about 13 per cent., while if he has not relapsed within six weeks of cessation of treatment his risk of subsequent relapse is reduced to less than 5 per cent.

Archives of Radiology and Electrotherapy, London

May, 1918, **22**, No. 12

12 Various Methods Available for Heating Filament of Coolidge Tube. F. H. Johnson.—p. 365.
13 Use of Opaque Ureteral Catheter to Localize Missiles in Region of Kidney and Ureter. A. Fullerton.—p. 371.
14 Electrical Department, Military Hospital, Tidworth. F. G. Bergin.—p. 376.
15 Fracture of Sesamoid Bones. J. H. Edwards.—p. 381.

Bristol Medico-Chiurgical Journal

1918, **36**, No. 135

16 Some Developments in Abdominal Surgery. F. Lace.—p. 1.

British Medical Journal, London

May 25, 1918, **1**, No. 2995

17 *Bacterial Flora of War Wounds. K. Goadby.—p. 581.
18 Vibrion Septique. M. Robertson.—p. 583.
19 Treatment and Prophylaxis of Malaria. C. A. Johnston.—p. 586.
20 Epidemic Polioencephalitis. C. H. Melland.—p. 587.
21 *"Thick Drop" Method for Detection of Scanty Spirochetes in Blood. H. M. Woodcock.—p. 589.
22 Internal Derangements of Knee Joint. H. Bramwell.—p. 589.

17. Bacterial Flora of War Wounds.—One hundred excised wounds were examined carefully to determine if any influence could be traced to the antiseptic used. Fifty of the wounds had been treated with hypochlorite, with or without Carrel tubes; forty had been treated by bipp. The remaining ten had various forms of antiseptics, including flavine and brilliant green. The two chief antiseptics in use were hypochlorite and bipp. On examining the percentage of the flora in each case there was no difference whatever attributable to either antiseptic. In each class—hypochlorite and bipp—the incidence of sporing bacteria and *Bacillus welchii* was 30 per cent.; for the proteolytic type 29 and 31 per cent., respectively, Goadby says, that certain practical disadvantages are associated with both these antiseptics. 1. Hypochlorite: Cases treated with Carrell tubes rarely arrive in home hospitals with the tubes in the position in which they were originally placed, and on the rare occasions on which they are still in the wound the tubes are generally so blocked as to render them entirely useless. On the other hand, as the Carrel tubes are passed through the bandages and fresh hypochlorite is passed down the tube, some of it finding its way into the wound or into the dressing, the chief advantage appears to be that the bandages are not removed in the ambulance train and the case submitted to the chance of fresh infection. 2. Bipp: A certain number of wounds arrive with so much bismuth inserted that it partially obscures the finer structure in fractured bones. A certain number of cases—10 per cent. of 100 cases treated with bipp—have shown symptoms of poisoning due to bismuth—blue line of the gums, blue tongue, and blue patches on the buccal surface of the cheeks, gastritis, diarrhea and vomiting. Three instances have been seen of iodin poisoning with mental symptoms. In cases of poisoning attributable to the bipp very large quantities had been made use of. In the immediate treatment of wounds, immediate excision of the lacerated tissues is apparently the only one that has produced a marked diminution in the anaerobic flora of the wounds.

21. Thick Drop Method for Detection of Spirochetes in Blood.—To prepare a thick drop for examination, a small drop of blood is placed on a clean slide. The drop should be about as large as is required for making a good sized smear and should be spread out a little (with the needle) so as to cover an area about three-eighths inch in diameter. Too thick a drop is not an advantage, as it is difficult to lake (dehemoglobinize) completely, and more fibrin is present. The drop must be allowed to dry thoroughly, and before proceeding to lake it, may be gently heated by passing it over a flame two or three times. There are several well known methods of laking the thick drop. Woodcock has made use of two: (*a*) distilled water, or (*b*) acidulated methyl alcohol. Dehemoglobinization is more complete and rapid by the former method, and there is less formation of fibrin. But unless the greatest care is exercised, the drop, or portions of it, are apt to be removed from the slide, in spite of complete drying (as there has been no proper fixation previously). If distilled water is used, and the preparation is to be stained by gentian-violet, it is advisable, after carefully draining off the water when the laking is complete, to pour on a few drops of methyl alcohol, for a minute or two, to fix the preparation to the slide.

The thick drop may be stained by the Giemsa or Leishman method, or with anilin gentian-violet; the last gives excellent results with spirochetes, the intensely blue stained parasites standing out well from the surrounding elements. Anilin gentian-violet is used in the proportion of 9 parts of anilin water to 1 part of alcoholic gentian-violet, the stain being left on for twenty seconds or so. The preparation is then well washed with distilled water, by which means the requisite degree of extraction and differentiation can be obtained, and finally dried. Where examination is desired for suspected malaria or relapsing fever, it is a useful plan to have the slide sent in with both a fair sized film and a thick drop on it. For staining, the smear can be separated from the drop by drawing a line with a grease pencil across the slide, between the two. The smear is stained by the Giemsa or Leishman method, and if no malarial parasites are found, nor spirochetes quickly seen, the thick drop is used. If it is desired to examine the drop also for scarce malarial parasites (for example, crescents) as well as spirochetes, the second method of laking is to be preferred, as distilled water is very liable to disintegrate malarial parasites; and in this case the Giemsa or Leishman method must be used for staining.

Journal of Tropical Medicine and Hygiene, London

May 15, 1918, **21**, No. 10

23 Sudanese Examples of Two Common Hyperkeratoses. A. J. Chalmers and A. Innes.—p. 105.

Lancet, London

May 18, 1918, **1**, No. 4942

24 *Teaching and Training in Hygiene: II. Training of Medical Public Health Worker. H. R. Kenwood.—p. 695.
25 *Botulism and Heine-Medin Disease. F. G. Crookshank.—p. 699.
26 Physiology of Functional Paralysis of Voluntary Movement. T. G. Brown and R. M. Stewart.—p. 702.
27 Mastoid Disease in Balkans. J. A. Jones.—p. 704.
28 Graphic Records of Muscle Reaction. G. M. Levick.—p. 705.
29 Meningococcus Agglutinating Serum: Method of Increasing Yield from Rabbit. A. S. G. Bell and I. M. Harmer.—p. 705.
30 *Twenty-Eight Cases of Ruptured Gastric Ulcer Among Soldiers with Two Deaths. C. E. Murphy.—p. 706.
31 *Plastic Operation for Apparently Lengthening Amputation Stump. S. A. Smith.—p. 706.

24. **Teaching and Training in Hygiene.**—Kenwood proposes founding in London a central institute of hygiene: At this institute there would be social study courses provided, both for undergraduates and postgraduates. These courses would be conducted by a university teacher, and would include addresses by experienced social workers and much observation work by visits. In connection with the center a summer course would be arranged for those who are already engaged in various kinds of public health work. A round of visits would be arranged to special public health provisions outside London. The center would also provide what we must all agree in believing is a legitimate function of a university center, namely, occasional opportunities for popular instruction. University evening lectures on subjects bearing on hygiene would attract good audiences, and in addition to effecting much good by disseminating useful knowledge would advertise the university and by exciting interest and appreciation assist in obtaining public donations for study and research. There would be seven or eight lecturers (two of whom should be professors and two assistant professors), eight demonstrators (four full-time) and eight full-time unqualified assistants; and, for the purposes of organization, one of the professors would be appointed to act as the director of the institute. Arrangements would be made whereby, throughout the whole of each working day, either a professor or an assistant professor would be in charge.

25. **Botulism and Heine-Medin Disease.**—There is at present in London (and elsewhere) an outbreak of cases clinically indistinguishable from examples of Heine-Medin disease. The outbreak is, epidemiologically and clinically, identical with the great epidemic in New York of 1916. All ages are affected, and the cases are of every grade of severity and of every clinical variety. The disease has three clinical stages: (*a*) That of initial illness, with, perhaps, sore throat; respiratory or gastro-intestinal disorder; headache and fever. (*b*) A latent period that may be very short (twenty-four hours or less), or prolonged to perhaps a fortnight or even more. (*c*) The stage of definite nervous symptoms. This stage may be: (1) absent or (2) "abortive," (3) rapid or (4) sudden in onset, (5) "paralytic" or (6) nonparalytic, (7) so consecutive to (*a*) as to appear clinically a part of it, or (8) so removed from (*a*) by (*b*) that connection is not at first considered by the medical man. The disease is communicable, especially in the stage called "a."

In respect of individual treatment the following suggestions are made by Crookshank: 1. Rest and good nursing are essential. 2. Careful cleansing of the mouth and pharynx; and attention to the state of the stomach, bowels, kidneys and bladder are imperative. 3. There is experimental and clinical evidence in favor of early, and at first intensive, administration of hexamethylenamin which, it is believed, may be combined usefully with salicylate of soda and benzoate of ammonia in free doses. 4. The employment of strychnin is of use in cases attended by bulbar exhaustion, or by paralysis of the muscles concerned in respiration. 5. The application by an atomizer of liquid paraffin to the mouth, nose and pharynx alleviates dryness of the passages and by lessening foulness diminishes the risk of secondary pulmonary affections. To this end, a drop or two of oil of peppermint, may be shaken up with each ounce of liquid paraffin used. 6. Confinement to bed should be prolonged rather than curtailed; and patients discharged should be watched, for at least three months, in order that record be obtained of any sequelae or permanent disability.

30. **Ruptured Gastric Ulcer Among Soldiers.**—Murphy's series of cases occurred in soldiers, aged from 28 to 43; none had ever served in the army before the present war. In every case (with one exception) the teeth were carious; in twenty cases there was marked pyorrhea. In twenty cases there had been a definite history of dyspepsia; in no case any hematemesis. Twenty-three cases were diagnosed as acute abdomens, presenting all the cardinal symptoms. Four cases were diagnosed as acute appendicitis, the appendix incision being used for drainage. In twenty-four cases period between rupture and operation was five to thirteen hours; all recovered. The two fatal cases had been ruptured sixteen and twenty-three hours, respectively; both died of general peritonitis. One patient ruptured twenty-one hours recovered. In all cases a purse-string suture of silk was put in round the ulcer; this was drawn together and the ulcer invaginated and a few Lembert's sutures over this to guard against leakage. In three cases the ulcer was so large that a piece of omentum was sewn down over it as a precaution. The site of rupture: In eighteen cases on anterior wall near lesser curvature; in six cases on anterior wall near greater curvature; in three cases posterior wall. In twenty-five cases the peritoneal cavity was well irrigated with saline infusion. In two cases the soiling was slight, and it was deemed wiser not to irrigate. In all cases (except four opened as appendicitis) a stab drain was made over pubis and a large tube put in, and in every case a large tube was placed down to site of rupture.

31. **Plastic Operation for Lengthening Amputation Stump.**—In a case of high humeral amputation Smith made use of this method. An inverted horse-shoe incision was made into the axilla, the stems of the incision being made well within the confines of the axillary space, to obviate the resulting scars being pressed on by the artificial arm later. The stump was abducted by an assistant, and the insertions of the pectoralis major in front and the latissimus dorsi behind were divided distally for about one half of their extent. The divided portions of the insertions of these muscles were tucked inward and upward and stitched into position by means of chromic catgut. The stump was now well abducted, and on account of the shortening of the axillary cavity the skin came together easily, the U being replaced by Y. The available stump was increased to 2 inches, and the patient wears an ordinary Blatchford A. E. arm, and has full control over the elbow movement.

Sei-I-Kwai Medical Journal, Tokyo

May, 1918, **37**, No. 435

32 Pathology of Beriberi. K. Honda.—p. 17.

Bulletin de l'Académie de Médecine, Paris

May 7, 1918, **79**, No. 18

33 *Epidemic Lethargic Encephalitis. A. Netter.—p. 337.
34 *The Survival of the Heart of Vertebrates. O. Laurent.—p. 347.
35 *Prognosis of War Fractures of Femur. Couteaud.—p. 352.
36 Rupture of Trachea from Shell Concussion. P. Coudray.—p. 354.
37 *Hysterectomy for Pelvic Suppuration. Rochard.—p. 356.

33. **Epidemic Lethargic Encephalitis.**—A previous communication by Netter was summarized in the Paris Letter, June 22, p. 1964. In the fifty-four cases compiled by Netter only thirteen of the patients were under the age of 13. The mortality was over 50 per cent., but the recovery seemed to be complete in those that survived. The disease may last only a few days or it may persist for weeks, or two or three months or more, the patients finally recovering when a fatal termination seemed inevitable, the sacrum, buttocks, spine and heels covered with eschars. Necropsy shows a diffuse interstitial encephalitis; the microscopic lesions resemble those of the trypanosoma sleeping sickness of Africa. Two previous epidemics are on record, one following the pandemic of influenza in 1890, and another in 1895, with cases reported from eight European countries and the United States. Netter insists that the disease cannot be a form of poliomyelitis, and its coincidence with influenza seems merely casual. There is nothing to sustain the assumption of botulism. He gave hexamethylenamin, finding it in the spinal fluid soon after. Intraspinal injection of convalescents' serum seems to offer the best promise in treatment, but he had no chance to apply it, although he has reported the successful application of this principle in treatment of poliomyelitis (1914).

34. **Survival of Heart.**—Laurent urges further research, in specially equipped laboratories, along the lines he has been working, studying the behavior of the heart after the abdomen and thorax have been opened or the animal killed in other ways. In one snake the heart was beating eleven times a minute three hours after death from chloroform. In twenty-seven animals he joined the heart of one animal to the abdominal aorta of an otherwise normal living animal, or to both the aorta and vena cava. He does not attempt to say whether the reviviscence of the heart thus "branched" is a recovery of vital energy, but the phenomena observed suggest this. They promise good results from utilization in this way of the vital energy of another organism. In four groups comprising eight wounded men he sutured the skin and muscles together, these Siamese wounds healing as rapidly and completely as the healing of the lips of an ordinary wound. The tolerance for these Siamese operations is the expression of a vital resistance, a potential of energy far surpassing anything previously imagined. He has sutured the shoulders of two ruminants together, and has thus united fowls of different species.

35. **Prognosis of War Fractures of Femur.**—Couteaud comments on the remarkable change for the better in the prognosis of war fractures of the femur. Among 213 men with compound fractures, 38 have entirely recovered; 92 have resumed full or light duty; 21 have been discharged with a more or less useful limb, and there are only 31 *mutilés* in the group; 31 died, mostly from phlebitis of small vessels. This entailed sudden death at some slight exertion; it is like a poisonous snake, ready to inoculate its venom at any moment. The prognosis depends on the individual resistance, and this is hard to foretell.

37. **Hysterectomy.**—Rochard pleads that total abdominal hysterectomy is far superior to the subtotal, which is having a vogue at present. He has encountered cases of cancer developing in the retained portion of the uterus, and the total removal of the uterus is the only practicable means for thorough drainage with severe suppuration in the pelvis. He obtains the advantages of both technics by doing first the abdominal subtotal operation and then immediately removing the cervix from below. The vagina is thus left open as after vaginal hysterectomy, with none of the defects of the latter technic. Some minor points in the technic of this "totalized subtotal hysterectomy" as he calls it, are described. The complete technic was written up in J. Dedet's Paris thesis, August, 1917.

Bulletins de la Société Médicale des Hôpitaux, Paris

March 22, 1918, **42**, No. 11

38 *Infectious Sore Throat. A. Courcoux and R. Debré—p. 297.
39 *Tuberculous Peritonitis. C. Achard and A. Leblanc.—p. 301.
40 *Lethargic Encephalitis at Paris. A. Netter.—p. 307.
41 *Oculomotor Paralysis from Shell Concussion. Lortat-Jacob and G. L. Hallez.—p. 311.
42 Arsphenamin in Chronic Lamblia Enteritis. A. Cade and A. C. Hollande.—p. 314.
43 *Adjuvants to Serotherapy in Meningitis. L. Boidin.—p. 317.
44 Oscillometer Test of Factitious Edema. D'Oelsnitz, Boisseau and Leroux.—p. 321.
45 Leukocytosis in Typhus, G. Stefanopoulo.—p. 323.

38. **Recurring Vincent's Angina.**—Courcoux and Debré state that fusospirillar sore throat is of more frequent occurrence of late than they have ever known it. In 1916 the proportion in the troops was about 2.26 per cent., the same figure that Vincent reported in 1905. In the last year, moreover, they have encountered a number of recurring cases. In one, the intervals of apparent health were one month and two and three months, the man having attacks between August and March, all equally severe. In a second case there were three attacks between May and November, but the general reaction was mild. Another man had an attack early in 1915, another two years later, and a third, ten months afterward, proved particularly tenacious. The spirilla and fusiform bacilli were found numerous during the free interval in the one man examined, who was thus a healthy carrier at the time.

39. **Tuberculous Peritonitis.**—Marfan has described in children a form of suppurative peritonitis localized at the umbilicus, and Achard here reports a typical case of this rare form of peritoneal tuberculosis. His patient is a man of 62 and the fistula just above the umbilicus has kept open for five months, but there are no other signs of tuberculosis and the general health has not suffered. There is no fever and the man has gained 22 pounds in weight. The first symptoms had been ascites and tympanism, as in children. Heliotherapy is scarcely available in this case on account of the thick and stiff walls of the pus pocket; some operative measure seems indicated.

40. See Abstract 33 above.

41. **Isolated Oculosympathetic Paralysis from Shell Concussion.**—The man of 31 was left with the Claude Bernard-Horner syndrome after subsidence of the usual nervous disturbances from severe shell concussion.

43. **Adjuvants to Serotherapy in Meningitis.**—Boidin has an autogenous vaccine made as a routine measure from the fluid obtained by spinal puncture in the meningitis cases. He injects it in very severe cases with or without a supplementary fixation abscess. The turn for the better under these adjuvants to serotherapy confirms their efficacy. In a typical case described, the first fixation abscess was followed by marked improvement. Then came a relapse, and permanent defervescence the second day after the second injection of turpentine to induce a fixation abscess. He advises these adjuvants in severe cases, especially when serotherapy for any reason was not applied early.

Journal de Médecine de Bordeaux

April, 1918, **89**, No. 4

46 *Simplified Suspension. J. Vitrac and L. Mongie.—p. 87.
47 The Sanatorium at Ilbarritz for Soldiers with Bone and Joint Tuberculosis. Peyret and Fournier.—p. 89.
48 *Rat-Bite Disease. P. Mauriac.—p. 93.
49 Physical Culture for Mind Workers. P. Nadal.—p. 97. To be continued.

46. **Suspension for Fractures.**—Vitrac and Mongie have materially simplified the apparatus for suspension, using interchangeable parts. The principle of cradle and hammock suspension is applied according to Alquier's technic, but the apparatus is much modified, as is described with illustrations.

48. **Rat-Bite Fever.**—The case reported differed from those on record in that there was little fever and no muscular pain, but intense pains in the joints and modification of the blood *picture, with* extreme anemia and weakness and high leukocytosis. The Wassermann reaction was positive although there was nothing to suggest syphilis otherwise.

Presse Médicale, Paris

May 13, 1918, **26**, No. 27

50 The Thomas Splint. P. Desfosses and C. Robert.—p. 241.
51 Macedonian Malaria. J. Bouygues.—p. 244.
52 *Acidosis from Surgeons' Standpoint. F. Jeunet.—p. 246.
53 *Topical Reaction in Treatment of Syphilis. Lacapère.—p. 247.
54 *Alveolar Pyorrhea. B. Kritchevsky and P. Séguin.—p. 248.

52. **Acidosis and Surgery.**—Jeunet remarks that the surgical patient has a special pathology, and it permits the practitioner to determine the indications for operation, to keep track of the immediate and remote consequences of the operation, and to ward off impending ills. Acidosis in particular can be detected, and measures taken to bring it under control or ward it off. Acidosis is probably responsible for certain cases of sudden coma after an operation, collapse suggesting embolism, and sudden death. The lesions accompanying acidosis involve the liver, brain cells, suprarenals and thyroid, but they are generally temporary disturbances. They subside during natural sleep, but not during repose without sleep. He cites Crile extensively, and declares that the ammonia content of the urine is an index of the resisting powers. With 2 gm. in the urine the acidosis must be regarded as grave, but not irremediable; with 3 gm. the prognosis is bad. In normal conditions, 10 gm. of sodium bicarbonate renders the urine alkaline, but in case of acidosis, 20, 40 or 50 gm. are necessary. The main point, however, is to ward off the acidosis by diet, copious supply of fluids, stimulants, and keeping the patient quiet, tranquil and cheerful.

53. **Topical Congestion in Syphilis.**—Lacapère declares that as long as the spirochetes are in evidence there will be a local congestion as the reaction to each injection of arsphenamin or its substitutes. The reaction grows less and less, as the spirochetes die off. This topical congestion reaction occurs in every syphilitic lesion, and so regularly and constantly that it may be utilized in differentiation of the syphilitic nature of a lesion. The congestion develops suddenly and reaches its height by the next day. The clinician should aim to keep these reactions slight, as they may prove serious when the lesions are in the brain, heart or kidneys. Once developed, they can be attenuated by subcutaneous injection of epinephrin, and it may be advisable to give a preliminary injection of epinephrin before repeating the dose of arsphenamin. In a case reported there was loss of consciousness after the third dose of arsphenamin in a syphilitic with headaches, vertigo and deafness for some months. The doses had been, respectively, 0.10, 0.15 and 0.30 gm. at five day intervals. If it had not been for the immediate injection of epinephrin, the cerebral congestion might have had serious consequences.

54. **Alveolar Pyorrhea and Arsphenamin.**—Kritchevsky and Séguin have been examining the teeth of 244 persons taking a course of arsphenamin (neosalvarsan) treatment. They found that 43 had pronounced pyorrhea and 62 incipient pyorrhea. Among 143 persons who had completed the course, they found spirochetes only in 3. In the 24 untreated cases of pyorrhea *the spirochetes were found numerous in all but 2.* In fully 50 per cent. of 110, before treatment, the secretions taken from the gums swarmed with spirochetes. After a course of treatment with neosalvarsan, no spirochetes could be found on the gums in 29, but in 13 others they were still numerous. No local measures had been applied, not even the removal of tartar. In other cases they applied the arsphenamin locally and the results were remarkable in every instance. Treatment of pyorrhea, therefore, they declare, should be by intravenous injections of neosalvarsan plus local treatment by curetting and thorough polishing of the root. They have found fluorin salts useful in removing tartar as they render it more friable. Besides this mechanical treatment, they instil neosalvarsan directly into the pocket, in solution or as a powder. The illustration of the spirochetes found shows great diversity in shape and size. The stain used was the Fontana-Tribondeau ammoniacal silver nitrate stain. Kolle published in January, 1917, the complete cure in 90 cases of pyorrhea under intravenous injections of neosalvarsan without local treatment. By the third injection, all were cured.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 11, 1918, **48**, No. 19

55 *Local Anesthesia for Operations on Eyes. O. Haab.—p. 593.
56 *The Spirocarbometer. A. Rapin and M. Turin.—p. 600.
57 Cretinism in Nollen Region. Finkbeiner.—p. 607. Continued.

55. **Local Anesthesia for Operations on Eyes.**—Haab refers in particular to iridectomy for glaucoma, and advocates injection of 2 drops of a 10 per cent solution of cocain, under the conjunctiva, at the point where the iridectomy is to be done. In from seven to ten *minutes the iridectomy can then be done* tranquilly and correctly, as this strong cocain solution actually banishes all pain. The same procedure is useful also for removal of a foreign body. In a case described a girl hoeing in stony ground felt a foreign body in her eye, but the physician consulted did not advise the use of the giant magnet which would easily at that stage have removed the scrap of iron responsible for the disturbances. Recurring mild inflammation finally compelled its removal, fifteen years later, but it was then rusty and embedded so firmly the magnet could not dislodge it. Under the subconjunctival injection of the 10 per cent. cocain, the scrap was easily removed through an incision in the cornea. The iris was seized with pincers; this loosened the scrap of steel, but *iridectomy was not done.* The iris was reduced and the patient was dismissed the tenth day with round pupil and normal vision. The steel splinter was 1.5 mm. long by 1 mm. wide and 0.5 mm. thick. Such cases are usually very difficult as, the iris being inflamed, it is exceptionally sensitive. The smooth course was evidently due to the complete anesthesia, as also in forty-six iridectomy operations done in the same way. *It materially simplifies iridectomy which he regards as the main operation for glaucoma in adults; in children, he prefers sclerotomy.*

56. **Carbon Dioxid Tension as Index of Acidosis.**—Rapin and Turin describe a simple little apparatus, the spirocarbometer, which permits at the bedside the determination of the carbon dioxid tension of the alveolar air, as an aid in estimating the degree of acidosis in a diabetic or other patient at a given moment.

Schweizer Archiv für Neurologie und Psychiatrie, Zurich

1917, **1**, No. 2

58 *Behavior of Leukocytes in Epilepsy. A. Bossard.—p. 269.
59 *Familial Amaurotic Idiocy: Pathologic Anatomy. F. Naville.—p. 286; Clinic.—p. 314.
60 Myopathy of Peripheral Origin. F. Naville.—p. 338.
61 *Connecting Tracts between the Cerebellum and the Stem of the Brain. H. Uemura.—p. 342. Commenced in No. 1, p. 151.
62 *Physiology of Convolutions. M. Minkowski.—p. 389.

58. **The Leukocytosis with Epilepsy.**—Bossard found leukocytosis a regular accompaniment of the epileptic seizure. It is distinguished not so much by the numbers of the leukocytes as by the early appearance of lymphocytosis and of mononucleosis.. Sometimes a polynuclear leukocytosis precedes the seizure by several hours. The same pathologic conditions causing the seizure are probably responsible also for this preliminary leukocytosis.

59. **Familial Amaurotic Idiocy.**—The microscopic findings in the typical case described show aplasia of the tracts in addition to the usual lesions of this form of idiocy. The infant was the fourth to be thus affected in a family with six children. The aspect of the neuraxis was like that in a six months fetus. In a second article Naville discusses the clinical picture, emphasizing that besides the infantile form there is a juvenile form and atypical forms, but all proceeding from the same pathognomonic degeneration of the cells. The eye findings may vary widely in these various types, but otherwise they are superposable with the exception that the infantile form has been found exclusively in Jewish families.

Among over 100 cases that have been published in various scattered parts of the world, all were in Jewish families except two. He adds that the families affected are even exclusively Polish Jews. In Magnus and Pooley's two cases, histologic examination was not made, so that an error in diagnosis is possible, and some admixture of Jewish blood is also possible. This racial feature of a disease found in the most diverse countries, he remarks, is a fact unique in pathology. The mendelian features seem to indicate a dominant character, as it affects 50 per cent. of the children and 100 per cent. of those of the same sex in certain families. Consanguineous unions are rare. It may possibly be a type of parental heredity which aborts because the subjects have no posterity. The connection between this disease and familial diseases of evolution is well shown by Higier's Jewish family in which there was one case of essential atrophy of the optic nerve, one case of Marie's cerebellar ataxia, and one of the amaurotic idiocy. The parents were not consanguineous and there was no history of syphilis. In some of the families on record three males, four males, were affected, but in Hume's case and in the family here described by Naville the boys escaped, and three girls were the victims. The articles are in French.

61. **Connecting Tracts Between Cerebellum and Stem of Brain.**—Uemura's extensive work is in German and has forty-one illustrations showing the different connecting links, and the different parts thus connected with each other.

62. **Physiology of the Rolandic and Parietal Convolutions.**—Minkowski's experimental research on the motor and sensory cortex confirms the clinical data and conclusions published recently by Monakow. The deficit phenomena were studied on macacus monkeys striving to make the conditions analogous to those in the clinic. This article is in French; with the bibliography, it fills seventy-one pages.

Clinica Chirurgica, Milan

June, 1917, **25**, No. 6

63 *War Wounds of the Bladder. C. Oliva.—p. 561.
64 *Pseudarthrosis from War Fracture. R. Alessandri.—p. 582.
65 *Improved Gastrectomy. A. L. Soresi.—p. 585.
66 Abdominal War Wounds. R. Alessandri.—p. 614.

63. **Wounds of the Bladder.**—Oliva reports that in his six cases of extraperitoneal wounds of the bladder a retention catheter tided the men along to recovery, with only 20 per cent. mortality. Healing was complete in less than ten days in all but one case with a fistula. That spontaneous healing is possible is evidenced by the numerous cases that have been published in which the projectile was extracted later. The slightest indication, however, that urine continues to seep into the tissues around calls for suprapubic cystotomy. Oliva advocates immediate intervention through the abdomen or the perineum if the man is brought in within the first few hours after the wound. This is the sure and safe plan when the wound is seen early.

64. **Pseudarthrosis of Ulna.**—Alessandri gives an illustrated description of the way in which he corrected the pseudarthrosis by a graft from the fibula.

65. **Improved Gastrectomy.**—Soresi's eighteen illustrations show the various steps of his technic and the results in a dog two years after the intervention. The clinical course in two patients is also reported. The advantages claimed for his technic are that the natural anatomic and physiologic conditions are restored better than with any other method, and that each step is facilitated by the one just before. There is no danger of hemorrhage or of infecting the field of operation, or of injuring important structures. The distal stump of the jejunum is sutured to the lowest point of the vertical raw edges of the stomach after the edges above have been sutured. Then the proximal stump of the jejunum is implanted low down in the distal part of the jejunum with an end-to-side suture. The stump of the duodenum is inverted with a sero-serosa suture. The edges of the jejunum where it is sutured to the stomach are cut rounding in such a way as to form a kind of ampulla.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 14, 1918, **39**, No. 30

67 *Common Mucous Enterocolitis. P. Finizia.—p. 293.

April 18, 1918, **39**, No. 31

68 *Mustard Gas on Italian Front. I. Andreoli.—p. 307.

67. **Mucous Enterocolitis.**—Finizia applies this term to a dysenteriform set of symptoms common among the troops on active service, but it never lasts very long and does not impair the general health. He warns that treatment should be restricted to resting the bowels; any attempt to give a purge is liable to aggravate and prolong the symptoms. Sudden pain is usually the first symptom, and the recurring colic and desires for frequent defecation are not accompanied by diarrhea. The act of empty defecation is painful and difficult; often nothing is voided but mucus and blood. He found the most effectual treatment to be with oil to reduce the inflammatory condition in the bowel, giving a little opium in the oil to reduce the reflex irritability, with food that makes little demand on the intestines.

68. **Poisoning from Mustard Gas.**—The case reported shows that yprite or "mustard gas" is being used now on the Italian front. The symptoms were those of a traumatic neurosis with cardiovascular and respiratory phenomena in addition to the burns on the exposed parts and external genitals, and extreme irritation of the conjunctival and nasal mucosa.

Policlinico, Rome

May 12, 1918, **25**, No. 19

69 *Diagnosis of Typhus. A. Ceconi.—p. 437.
70 *War Wounds of Thorax. V. Saviozzi.—p. 441.

69. **Diagnosis of Typhus.**—Ceconi applies an elastic band, or compresses with the fingers, to obstruct the circulation in the arm. If typhus is present, this brings out the spots in large numbers and intensifies the tint of those already prominent. As the constriction is released, some of the spots change at once to petechiae. The same procedure shows a marked change in tint in patches of the skin of those who have recently passed through typhus, permitting a retrospective diagnosis, even four or eight weeks after defervescence. Histologic examination of a scrap of skin from one of the spots, even eight weeks afterward, still showed the vascular features of the petechial roseola. Ceconi warns that this constriction test may induce similar phenomena in simple and in hemolytic jaundice, and in rheumatic purpura, but the symptoms otherwise prevent confusion. The region over the scapula on which the sick man lies most of the time usually shows the same accentuation of the spots as below the constricting band. Dermographism is also pronounced in typhus, and desquamation follows the stroke of a pencil or finger on the skin. The skin throws off a powder like the dust raised on paper with a rubber eraser. Another feature of typhus is the torpid circulation, so that intramuscular and subcutaneous injections, etc., almost inevitably entail topical gangrenous manifestations even a month after recovery. The agglutinating reaction grows less pronounced parallel to the subsidence of the stasis phenomena.

70. **War Wounds of the Chest.**—Saviozzi has had 137 cases of war wounds of the chest with sixty-nine recoveries. Thoracentesis in the first week is liable to bring on hemorrhage. The necropsy findings impress the necessity for ligating the intercostal artery, if the hemorrhage is from the chest wall. This can be done through a small incision made for the purpose. Morelli has recently reported excellent results from induced pneumothorax with filtered air to check hemorrhage after aspiration of the blood in the pleural cavity.

Riforma Medica, Naples

April 20, 1918, **34**, No. 16

71 Technic for Cesarean Section. S. Delle Chiaje.—p. 302.
72 *Italian Contributions to Endocrinology. A. Ferrannini.—p. 306.
73 The Thyroid with Exophthalmic Goiter. R. de Nunno.—p. 309.

72. **Italian Contributions to Endocrinology.**—Ferrannini remarks that G. Müller, in 1830, was the first to call attention to the existence of glands with an internal secretion, but the Italian, Restelli, in 1845, inaugurated the system of studying function by deficit, removing the spleen for the purpose.

This was eleven years before Brown-Séquard's research in this line. Pellacani and Foa in 1879 and 1883 published reports of injection into animals of suprarenal extract. Brown-Séquard's famous experiments with organ extracts date only from 1889. The suprarenals were first described by the Italians, Eustachio in 1563, Bartolini in 1641 and Malpighi in 1687. The histology of the endocrine glands was intensively studied early by numerous Italians, and even the Germans cite Diamare as the first to establish the influence of the islands of Langerhans on carbohydrate metabolism. In 1889, experimental diabetes after removal of the pancreas was reported by De Dominicis in Italy and simultaneously by Minkowski and Mering in Germany, but the Italian, Martinotti, the year before had proved the feasibility of pancreatectomy in dogs. It was Vassale in 1896 who first established the phyciologic rôle of the parathyroids, and Lo Monaco in 1894 the rôle of the pituitary body, as determined by the effects of removal.

Flajani's pioneer description of exophthalmic goiter dates from 1802; it was amplified by Graves in England in 1835 and by Basedow in Germany in 1841, but Castellino was the first to ascribe the disease to excessive functioning of the thyroid. The ovarian factor in chlorosis was first emphasized by Fedeli, Arcangeli and other Italians. In 1897, Rummo and Ferrannini described what they called geroderma genitodistrofico, which they ascribed to abnormal functioning of several ductless glands. This was years before the French in 1905 advanced the new conception of pluriglandular insufficiency. Ferrannini in 1903 called attention to a constitutional hypotony of the vessels, from congenital functional deficiency in the suprarenal-sympathetic system; Addison's disease is the most striking example of this. A year later Vaquez described a syndrome due to excessive functioning—the exact opposite. In 1913 Ferrannini described research showing the importance of the suprarenals in the vascular compensation of aortic insufficiency, and a year later Josué published an account of a variety of myocardium insufficiency in which, while the heart was found hypertrophied, the suprarenals showed various injuries. In 1890 Vassale suggested thyroid treatment for hypothyroidism, and Ferrannini proposed an extract of stomach tissues in treatment of stomach disease. Not until five years later was similar treatment suggested and carried out in France. The Italians were pioneers also in other fields of endocrinology, such as the internal secretion of the spleen, of the tonsils and salivary glands, and association of xerosis with asthenia and cachexia.

Rivista Critica di Clinica Medica, Florence

Jan. 5, 1918, **19**, No. 1

74 Behavior of Urine after Salvarsan. S. Pisani.—p. 5.

Jan. 12, 1918, **19**, No. 2

75 *Peripheral Facial and Acoustic Paralysis with Hemiplegia. F. Schupfer.—p. 13. Commenced in No. 1.—p. 1.
76 Technic for Quinin in Malaria. G. Memmi.—p. 22.

75. Syphilitic Peripheral Paralysis.—The Wassermann reaction is positive in the man of 46 but the facial and left acoustic paralysis and homolateral hemiplegia was of four months' standing before the syphilitic origin was suspected and specific treatment applied. The parts had evidently been injured beyond repair during these four months. The first symptoms of trouble were disturbances in hearing and peripheral paralysis—all on the left side and ascribed to rheumatism for over three months.

Anales del Inst. Mod. de Clinica Medica, Buenos Aires

July-December, 1917, **2**, No. 2

77 The General Pathology of the Liver. L. Agote.—p. 167.
78 Ileocecal Tuberculoma. J. Arce.—p. 171.
79 Relative Leukocyte Count in Normal Adults. E. Lorentz.—p. 181.
80 Double Iodid of Emetin and Bismuth in Treatment of Amebiasis. R. F. *Vaccarezza*.—p. 204.
81 *Experimental Degeneration and Regeneration of Peripheral Nerves. P. *Rojas*.—p. 218.
82 Horseshoe Kidney. A. Galindez.—p. 285.
83 *Brain Tumor. L. Merzbacher and R. Novaro.—p. 290.
84 *Knot Constrictor. A. Galindez.—p. 309.
85 Roentgen Findings with Stone in Pelvic Ureter or Gallbladder. J. F. M. Gomez.—p. 314.

81. Regeneration of Peripheral Nerves.—Rojas' long article is accompanied with forty-six photomicrographs showing the course of the degeneration and the regeneration of the sciatic nerve of various young animals, mostly dogs, rabbits and guinea-pigs, after the nerve had been severed, crushed or otherwise injured.

83. Tumor in Ventricle Simulating Pituitary Tumor.—In the two cases described, with photomicrographs, the symptoms pointed apparently unmistakably to a tumor in the pituitary body. But when this region was opened up by slitting the nasal septum, the pituitary body was found normal. One of the young women died two days later; the other survived for several weeks. In both cases a sarcoma in the third ventricle had induced hydrocephalus and direct compression of the infundibulum.

84. Knot Clincher.—Finocchietto's apparatus, called the *constrictor cierra-nudos*, applies a clip bent to form a square, and clamps it tight and firm. The compression is done between the four rigid walls which the instrument presents to the part of the bowel or pylorus to be clamped.

Brazil-Medico, Rio de Janeiro

March 30, 1918, **32**, No. 13

86 Eugregarina Parasites of Arthropods, V. C. F. *Pinto*.—p. 97.
87 Local Disinfectants in Otorhinolaryngology. J. *Marinho*.—p. 98.

Cronica Medica, Lima, Peru

April, 1918, **35**, No. 658

88 Syphilitic Aortitis and Nephritis. E. *Odriozola*.—p. 97.
89 *Echinococcus Cyst in Liver. C. A. Bambaren.—p. 102.
90 *Pregnancy in the Tuberculous. R. A. Menendez.—p. 113.
91 *Leishmaniasis. E. Escomel.—p. 116. Continuation.
92 History of Chemistry in Peru. H. Valdizan.—p. 120.

89. Perforation of Echinococcus Cyst.—Three years after an operation for echinococcus cyst of the liver, the young woman returned with the same set of symptoms, and a second operation revealed a large echinococcus cyst. Each time the cyst had been treated with formaldehyd before its removal. The cyst the second time contained 2,500 c.c. of fluid. The second day after the last operation the dressings over the wound were found soiled with substances from the stomach, showing a postoperative perforation into the stomach. The cyst was tamponed firmly and nothing was allowed by the mouth for three or four days, after which smooth recovery followed. There had evidently been adhesions enough to prevent injury from the perforation into the stomach. The first cyst may have been multilocular, and the second one was probably a recurrence. Quemin has compiled 66 cases of recurrence, in 29 in the liver and in 11 in the muscles. Cranwell and Vegas have reported recurrence in 22 of 414 cases, including 18 in the liver. The intervals ranged from one to eighteen years, but all but 10 were in the first three years.

90. Pregnancy in the Tuberculous.—From his own experience and the data on record, Menendez concludes that induced abortion gives good results only when there is a simple tuberculous process at the apex, not extensive and not complicated with other lesions, and the pregnancy has not reached the fourth month. When abortion is not practicable, excision of the site of the placenta or hysterectomy after delivery does away with the dangerous secondary focus in the placenta region.

91. *Leishmaniasis*.—In this instalment of his authoritative serial on leishmaniasis, Escomel discusses the disease as it involves mucous membranes and the skin, the ulcerative form, the papulotuberculous, the atrophic and the lymphangitic forms. His experience confirms that of others who have never been able to find giant cells in the ulcerations in the skin.

Cronica Medico-Quirurgica, Havana

March, 1918, **44**, No. 3

93 Congenital and Traumatic Cataract and Cataract in the Young. J. *Santos Fernandez*.—p. 128.
94 *Reflex Amyotrophy of Joint Origin. J. O. Cano.—p. 132.
95 Perirenal Abscess after Anthrax. A. P. Miro.—p. 138.
96 *Hospitalization of Typhoid. M. G. *Lebredo*.—p. 141.
97 Organization of the Medical Press. V. Sotolongo.—p. 147.

98 Reese's Operation for Squint. F. M. Fernandez.—p. 158.
99 *Right of Pharmacist to Refuse to Dispense Prescription. G. F. Abreu.—p. 161.

94. Summarized when it appeared elsewhere, Abstract 105, April 6, 1918, p. 1045.

96. Summarized when it appeared elsewhere, Abstract 92, April 27, 1918, p. 1269.

99. **The Pharmacist's Right to Refuse to Dispense a Prescription.**—Abreu urges modification of the present laws to permit a pharmacist to decline to dispense a medicine—even if the prescription has been ratified by the physician—when he believes there is incompatibility between the ingredients or the amounts specified are excessive. He suggests that the regulations should provide that unless the physician can satisfy him by citing some textbook or other authority or work based on personal experience and presented at some medical society and approved by it, the pharmacist is at liberty to refuse to dispense the medicine in question. Abreu also pleads to have every prescription state explicitly the single dose and also the number of doses per day; when this is not done, the pharmacist is degraded to the rank of a mere mechanical factor, with no means of judging the prescription's suitability. It is safer for the patient, also, to have the limit for the day specified. For certain drugs, the maximal single dose and the toxic dose are very close together. The Codex gives the single maximal dose for atropin as 0.0005 gm. and the maximal dose for twenty-four hours as 0.001 gm. which is only twice the single dose. A prescription calling for 0.005 gm. might be ratified by the prescriber but if more than two doses were taken during the day, there would be severe toxic action. Another point to which he calls attention is the necessity for legislation to insist that all chemical and pharmaceutical products introduced into the country for the first time must specify on the label the therapeutic and the toxic doses, in addition to the data now required.

Gaceta Medica de Caracas, Venezuela

March 15, 1918, **25**, No. 5

100 The Academies of Medicine. J. Santos Fernandez.—p. 48.

March 31, 1918, **25**, No. 6

101 Efficacy of Tartar Emetic in Leishmaniasis of the Horse. J. Iturbe.—p. 62.
102 Relapsing Fever in Venezuela. C. J. Bello and H. Sanchez.—p. 63.
103 Syphilis. C. E. Salom.—p. 64.

Prensa Medica Argentina, Buenos Aires

March 20, 1918, **4**, No. 29

104 *Tardy Inherited Syphilis. M. R. Castex.—p. 407.
105 *Ocular Paralysis after Intraspinal Anesthesia. E. Dameno.—p. 417.

104. **Tardy Manifestations of Inherited Syphilis.**—Castex is convinced that gastric and duodenal ulcers are as closely linked to inherited or acquired syphilis as tabes and general paralysis. The next step, he remarks, is to question the connection between syphilis and cancer, as a certain proportion of gastric ulcers become transformed into cancer. Cerebral and rectosigmoid syphilitic lesions are common in Argentina, and also cancers in these regions. The question of syphilis in the antecedents of cancer cases and of dementia praecox is not a new one, but has not been thoroughly investigated. On the other hand, the anatomic findings and the benefit from treatment have confirmed the inherited syphilis basis in his experience with perivisceritis, polyserositis, pseudotumors in the brain, myopathies and juvenile asthma. The spirochete is found in many cases of tardy inherited syphilis. The tardy manifestations first appear between the eighth and fourteenth years, and do not differ in any respect from the tertiary manifestations of acquired syphilis. He ascribes great diagnostic importance to the minute "achromic and anectodermic scars" scattered on the trunk or legs. Fournier classed them as relics of some specific eruption early in life, but Castex insists that they are the scars left by small tertiary gummas in the skin which had subsided spontaneously or under the influence of specific treatment. He has found them, in both inherited and acquired tertiary syphilis, in over 90 per cent. of his cases. With untreated tertiary syphilis, if the skin is burned or contused, the scars that result take this typical nonpigmented anectodermic form. But if vigorous treatment is applied, they do not take this form.

He reports cases which confirm the possible virulence and contagiousness of tardy inherited syphilis and its possible transmission to the children, and advocates vigorous and repeated mercurial treatment in all cases of inherited syphilis, although he does not assert that it is possible to cure inherited syphilis.

105. **Oculomotor Paralysis After Intraspinal Anesthesia.**—Dameno reports four cases in which the external rectus muscles of the eyes became temporarily paralyzed after an operation under novocain spinal anesthesia. The paralysis did not develop until a few days afterward, and it subsided completely by the end of three weeks. The sixth pair seems to be particularly susceptible to toxic action from intraspinal anesthetization, but in all the eighty similar cases on record the disturbances retrogressed spontaneously.

Revista Medica del Uruguay, Montevideo

March, 1918, **21**, No. 3

106 Cow's Milk for Children. L. Morquio.—p. 97.
107 *Primary Echinococcus Uterine Cyst. A. Turenne.—p. 119.
108 Febrile Chlorosis. P. E. Duprat.—p. 126.

107. **Primary Echinococcus Cyst of the Uterus.**—Turenne started to excise a supposed myoma in the uterus of a woman of 47. As the tumor was seized with forceps, it tore and a flood of fluid startled the surgeon as he feared he had blundered into overlooking a pregnancy. There was nothing to be done then but remove the uterus by subtotal amputation. In Argentina where echinococcus disease is so common, he has been unable to learn of but one other case of a primary echinococcus affection of the uterus. In the literature he has found records of eight others, published in England, Germany, Italy or Russia. His case brings the total to ten. In his case the cyst had probably been present during the woman's last pregnancy.

Semana Medica, Buenos Aires

April 18, 1918, **25**, No. 16

109 Sanatoriums and Farm Colonies for the Tuberculous. E. R. Coni.—p. 444.

April 25, 1918, **25**, No. 17

110 *Gastro-Intestinal Disease in Children. R. Cabrera and T. Scannavino.—p. 465.
111 The Prognosis in Tuberculosis. S. de Madrid.—p. 489.
112 *The Campaign against Tuberculosis. E. R. Coni.—p. 493.

110. **Digestive Disturbances in Children.**—This long article emphasizes the importance of classifying each case of dyspepsia according to the cause. Perhaps the most important difference between the disturbances from actual gastroenteritis and dyspepsia from overfeeding is that the immediate symptoms with the latter are less intense and less grave. The course with gastro-enteritis is acute or subacute, never chronic. Other causes must be sought when this acute and cyclic affection drags over a long period. On removal of the secondary factors the gastro-enteritis subsides.

112. **Tuberculosis.**—Coni discusses the organization of a campaign against tuberculosis in the rural districts, and gives a historical sketch of the change in the general attitude toward the tuberculous in the last forty-five years. He states that there is no adequate notification in Buenos Aires of cases of tuberculosis. In the last four years, the numbers of cases reported to the authorities by physicians have been, respectively, 70, 74, 57 and 48. The anonymous notifications numbered 206, 223, 67 and 60—all showing a decline, while the number of deaths from tuberculosis increased last year.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 3

113 *Cholera Vibriones in Tropical Soil. P. C. Flu.—p. 1.
114 *Cholera in Batavia. P. C. Flu.—p. 39.
115 *Test for Fecal Contamination of Water. P. C. Flu.—p. 104.

113. **Survival of Cholera Vibriones in Soil.**—Flu refers to the soil in the coolie quarters at Batavia which become hotbeds of cholera whenever the disease is epidemic. The normal flora in the soil and other factors soon destroy the cholera

germs on the soil, so that none survive longer than two days when the ground is damp; during dry weather the vibriones are found alive in the soil up to four or six days. But even under the most favorable conditions, the vibriones do not proliferate in the soil.

114. **Endemic Cholera.**—Batavia still has endemic cholera although two other large towns in Java have ceased to be foci of endemic cholera since a good water supply has been installed. After having been free from cholera for some time an epidemic occurred at Batavia in 1909 and has continued to date with only a few months' intermission each year. Healthy carriers from Sumatra are evidently responsible for much of this morbidity, but the utter lack of hygiene among the natives, and the use of river water for drinking and bathing perpetuate the epidemic. Rainy weather facilitating drainage checks the epidemics, but sporadic cases continue even through the rainy season. Immediately after a heavy rain, flushing the latrines and contaminating the rivers, cholera flares up anew. As the rains continue, however, the vibriones get washed away and the fly nuisance abates, so that the epidemic dies out.

The link between the different epidemics is afforded by the sporadic mild cases occurring during the apparently cholera-free periods. Search for these mild sporadic cases and search for carriers is the only means to eradicate cholera. The vibriones do not lead a saprophytic existence in soil, in water or in flies. Their only permanent habitat seems to be in the human intestine, and especially in persons who have been left chronic sowers of vibriones after recovery from cholera. There is probably some specific inflammation of the bile ducts in which the vibriones lurk, analogous to conditions in typhoid carriers.

115. **Fermentation Test for Contamination of Water.**—Flu reviews the contradictory reports that have been published on Eijkman's fermentation test. It is based on the assumption that only true colon bacilli, from the bowels of mammals, are able to ferment glucose at 46 C. This is the maximal limit of the fermentation property. The Eijkman test, positive at first, may give negative findings when the contamination is no longer recent—a self-purification process having occurred. By applying the test in parallel sets of tubes at 37 C. and 46 C. the smaller or larger difference between the findings in each set will determine whether the contamination is recent or old. The glucose-peptone solution must be slightly alkaline. These reports are all published in parallel columns in Dutch and English.

Hospitalstidende, Copenhagen

April 17, 1918, **61**, No. 16

116 *Liver Substance in Treatment of Night Blindness. v. Stenitzer and G. E. Schrøder.—p. 481.
117 *Artificial Ankylosis of Wrist. H. Fovelin.—p. 493.

116. **Liver Treatment of Night Blindness.**—Schrøder was unable to detect any special influence on the hemeralopia when the men were given 200 gm. of cooked liver in their soup daily. Others have reported benefit from this.

117. **Artificial Ankylosis of the Wrist.**—Fovelin has seen large numbers of cases of war fracture of the humerus with lesion of the radial nerve causing "drop hand." To avoid condemning the man to wear a prosthesis for life, he induced artificial ankylosis of the wrist. This enabled the man to dispense with a prosthesis and use his hand comparatively normally.

Norsk Magazin for Lægevidenskaben, Christiania

May, 1918, **79**, No. 5

118 *Myasthenia Gravis. G. H. Monrad-Krohn.—p. 489.
119 *Yellow Tint of Cerebrospinal Fluid. F. Leegaard.—p. 512.
120 *Friedländer's Bacillus. E. Julsrud.—p. 533.
121 *Meningococcus—Gonococcus. E. Aaser and J. Holst.—p. 543.

118. **Myasthenia Gravis.**—Krohn warns against mistaking myasthenia for progressive bulbar paralysis or progressive ophthalmoplegia which it deceptively resembles. The paralysis with myasthenia gravis is not true paralysis; it is merely weakness of the muscles and the aim in treatment is to rest the muscles. They must be given the chance and time to recuperate, and be protected against the slightest strain. All the muscles may be affected, but some more than others, and there is great variability, sudden changes from slight to extreme weakness and vice versa. No causal treatment is known but symptomatic measures may tide the patients past the danger point to final partial or complete recovery. In the first of two cases reported in detail, artificial respiration had to be applied several times and kept up sometimes for two hours. Subcutaneous injections of camphor seemed to help in this case. In the two cases published by Krogh, both patients died from suffocation. Most of the cases on record have been in women between 20 and 30. The central nervous system has been found apparently normal at necropsies. Electric tests demonstrate that the abnormal fatigue of the muscles is of peripheral nature, and in repose the muscle regains strength. The muscle is given a chance to rest and recuperate, and this is of vital moment, particularly for the muscles of swallowing. Krohn insists that lack of care in this respect may have fatal results. The patient's meals should be under the close supervision of a nurse who should see to it that, at the very least, two minutes must elapse between one swallowing movement and the next. The nurse should control this, watch in hand. The food can be fluid or chopped fine, but the muscles of swallowing must be given an interval of at least two minutes before they are used again. To let the patient drink from a cup—thus inducing a rapid series of deglutition movements—he regards as equivalent to murdering a person by drowning. The patient should always be spoon fed. Rectal feeding may usefully supplement the other food at need. He warns in particular against the stomach tube. It either induces reflex movements and thus unnecessarily exhausts the patient, or, if there are no local reflexes, the tube is liable to slide into the trachea. Oppenheim has reported a fatal result from the use of the stomach tube in myasthenia. The dyspnea requiring artificial respiration may come on suddenly, especially after a bad night. The movements for artificial respiration do not seem to fatigue the patient unduly. Electric tests should not be applied to the muscles of the head or trunk, but the myasthenic reaction in the extremities is a guide to the treatment, especially in regard to the necessity for care in feeding. He adds that strychnin is contraindicated. Absolute rest is the keynote to treatment.

119. **Xanthochromia.**—In Leegaard's three cases the yellow tint of the cerebrospinal fluid was due to tuberculous meningitis or hemorrhage from trauma or a tumor in the temporal lobe. These cases are compared with cases of xanthochromia on record.

120. **The Friedländer Bacillus.**—Julsrud reports two cases to illustrate some of the various clinical pictures for which Friedländer's *Bacillus pneumoniae* may be incriminated. In the first case there was fatal sepsis in a woman of 52. The other patient was a man of 40 in the hospital for three months with the diagnosis of pulmonary tuberculosis. There was no necropsy but the sputum contained only the Friedländer and inoculation of guinea-pigs and mice proved negative. He had had pneumonia six times since childhood, the next to the last time accompanied with empyema.

121. **Meningococcus-Gonococcus.**—Aaser and Holst refer to Eisenmann's work in 1830 on gonococcus meningitis and others since, citing cases of conjunctivitis, rhinitis and stomatitis of gonococcus origin, even in children, from extragenital infection. A case of primary gonococcus sepsis was reported in 1908. Gonococcus general infection may occur without urethritis, and meningococcus general infection without meningitis. In certain other respects the gonococcus and the meningococcus resemble each other, and among the diplococci found in certain sporadic cases of meningitis, some seem to stand closer to the gonococcus than to the meningococcus. They tabulate the findings in twenty-two sporadic cases of meningitis in which they applied different tests for gonococci to the cerebrospinal fluid, also to the secretions from the nasopharynx of patients with gonorrheal urethritis. Deviation of complement, agglutination and inoculation of animals all gave concordantly negative results.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 71, No. 2 CHICAGO, ILLINOIS JULY 13, 1918

SURGERY OF THE GALLBLADDER AND THE BILIARY DUCTS *

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ROCHESTER, MINN.

Infection and malignancy are conditions which enter into the etiology of surgical lesions of the biliary tract. The contention that infection enters this region much more often by way of the general circulation than was formerly believed is supported by the results of experimental work on animals and also by the fact that infections in this tract are, in many instances, only a part of a more general infection, as is frequently shown by the presence of lesions existing in the appendix, duodenum or stomach at the same time. Whether the infection is primary in any one of these foci and from it distributed to the other regions, or whether infection begins at the same time at several different points, owing to organisms circulating in the blood stream, cannot be definitely decided. It is, however, of practical importance that surgical procedure for lesions of the biliary tract will usually involve exploration of these several areas, which adds little to the operation.

Undoubtedly, the entrance of the infection is sometimes through the portal circulation and the liver. In such cases, infection exists within the liver as well, though apparently this is eventually relieved by the proper surgical treatment. Infection persisting in the liver may in some instances be the cause of a recurrence of symptoms at a future time. The formation of calculi, which is usually the result of invasion by some type of bacteria, apparently takes place in the gallbladder or ducts or even in the intrahepatic ducts, though as stagnation is probably an important factor in stone formation, the stones more commonly have their origin within the gallbladder.

Surgery in malignant diseases of this region is usually palliative, and consists in devising some method by which the bile may be diverted into another part of the intestinal tract. Carcinoma of the gallbladder is rare and is seldom discovered in time to allow a radical removal. Primary carcinoma of the common duct is at times found when it can be excised and the tissues reconstructed with some hope of a complete cure. An obstructing malignant growth at the ampulla or in the head of the pancreas is more often seen. This necessitates joining the gallbladder to the stomach or intestine.

CLINICAL CLASSIFICATION OF CASES

For the purpose of reviewing the clinical features in diseases of the gallbladder and its ducts they have been considered in four groups.

Group 1: In this group are those cases of a more or less chronic cholecystitis producing dyspepsia and at times acting as a focus for a more or less general infection. Such cases were mentioned by Moynihan as presenting the inaugural symptoms of gallbladder disease, and were those which formerly were slow in coming to surgeons. At the present time such conditions are much better understood. The clinical history in this group is not definite, and most intensive study is necessary before treatment can be recommended. All other possible lesions, of which there are many, must be excluded. The pain is usually not at all typical and is apt to be almost constant. A slight jaundice is frequently present and is sometimes persistent; attacks with a rise of temperature may be a part of the syndrome suggesting that the infection extends beyond the gallbladder. Often the condition has symptoms of general toxemia associated with it. The clinical evidence in many instances suggests that the neuritis or general rheumatic features are produced by an infected gallbladder which is acting as a focus for the general infection. Neuritis especially seems to be a part of the syndrome in some of these cases. Many of the patients with general toxemia complain of innumerable points of tenderness and pain, and great caution should be observed in assuming that these difficulties arise from the gallbladder. On the other hand, there can be no question that the infected gallbladder sometimes is a focus for general infection, and that this infection will subside when attention has been given to the gallbladder.

In many instances, cholecystitis is undoubtedly a forerunner of the formation of calculi, although, in a certain definite percentage of cases, cholecystitis remains a separate entity without showing any evidence of stone formation. Just what difference there is, in the pathology and bacteriology, between cholecystitis with stones and cholecystitis without stones, has not been definitely determined, although inflammation of the strawberry type may reach a very extreme degree without the formation of stone. It exists more often without stones than with them, so that apparently stones not only are the result of infection but also are the result of certain definite types of infection, and possibly occur under specific conditions. Gangrene and perforation of the gallbladder may occur without any evidence of calculi. At the time of exploration, it may be difficult to make out the pathologic conditions in the gallbladder even when the clinical features are very definite, as the gallbladder may appear quite normal. It must be granted that there is a certain percentage of such cases in which an exploration is made on good clinical evidence and in which no definite pathologic condition can be demonstrated. While at times it may seem advisable to remove a gallbladder which appears and feels quite

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* Chairman's address, read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

changes produced in the flow of bile by cholecystectomy, it would seem well established that the gallbladder certainly has something to do with the bile flow, and that its action as a tension bulb must be one of its most important duties.

Our investigations and also those of others would seem to show beyond any question that the bile flow is regulated, at least to a degree, by the gallbladder. Mann's comparative studies of animals having a gallbladder with those not having a gallbladder are also interesting. He has shown that the length, diameter and point of entrance of the common duct into the duodenum, while varying considerably in different species, bears no relationship to either the normal presence or absence of the gallbladder. These studies show, however, that the species of animals without a gallbladder maintain practically no pressure in the common duct. In no instance was the pressure withstood by the sphincter of Oddi more than 30 mm. of water in animals without a gallbladder as compared with 100 mm. as the minimum pressure which the sphincter would withstand in animals possessing a gallbladder. While the sphincter of Oddi is histologically and anatomically the same in animals of the two species, it is not physiologically active in animals without a gallbladder or is certainly not so active as in those possessing one.

TECHNIC OF THE REMOVAL OF THE GALLBLADDER

The technic of operations on the gallbladder and ducts is definitely established, though there is much variation in the operation according to the judgment and method of proceeding of the individual operator. There can be no question that cholecystectomy is as safe a procedure as cholecystostomy, if the operator has had ordinary experience. The immediate convalescence is more satisfactory and the ultimate results certainly are better following cholecystectomy. Whether the removal of the gallbladder be done by starting at the fundus and dissecting downward or by starting at the cystic duct and freeing it first, there are two main factors which must be emphasized: 1. The cystic artery must be securely tied. I do not believe it is material whether this is tied in conjunction with the cystic duct or separately. If the artery can be isolated with the duct and tied at the same time, it will be sufficient. 2. In order to prevent any disturbance of the common duct, it is absolutely essential that a complete isolation of the cystic duct be made before any clamps or ligatures are applied. The most serious consequence of a cholecystectomy is trauma to the common duct. The duct has undoubtedly been caught in clamps and completely divided a great many times. This cannot possibly happen if the cystic duct is isolated beforehand. In an endeavor to remove all of the cystic duct, the common duct has often been injured or even ligated. Judging from our review of recurring cases it does not appear necessary to remove all of the cystic duct to obtain satisfactory results. In a very small percentage of cases, if at all, will the stump of the cystic duct or the entire cystic duct cause trouble after cholecystectomy.

While removal of the gallbladder should be the operation of choice, in cases of cholecystitis with or without stones, still, in a certain small percentage of cases, it is much better to do a cholecystostomy primarily and then to remove the gallbladder in a second operation if it becomes necessary. This would seem to me to be the best plan in case of much infection outside of and about the gallbladder or in cases in which there is a great amount of induration and edema about the ducts. If the infection is confined to the gallbladder, it is best to remove it if possible. Enlargement and hardening of the head of the pancreas is an indication for removal of the gallbladder in preference to drainage, and this would still hold good in the presence of a slight degree of jaundice if the jaundice is due to pancreatitis. Cholecystectomy, seemingly, accomplishes more in cases of pancreatitis associated with gallbladder conditions than does any other form of treatment. This is probably due to the changes produced in the excretory apparatus by the removal of the gallbladder. It does not seem to me to be advisable to open the common duct for exploration unless stones can be palpated or unless clinical features suggest that stones or infection are present in the duct. Dilatation of the common duct is not an indication for draining it, as this change would have taken place if the gallbladder had been out of commission for any length of time. If jaundice exists at the time of the operation, the duct, as a rule, should be opened even if no stones are palpated, as the convalescence will be more satisfactory if the infected ducts are drained. If the stones in the ampulla can be removed through an opening in the duct, it is much safer and is preferable to the transduodenal operation. Exploration of the gallbladder and ducts should be performed in almost all cases of chronic jaundice in which the diagnosis is uncertain. Some of these will prove to be due to infection which can be promptly relieved; and if a malignant obstruction does exist, a palliative operation can often be done which will be very satisfactory.

INDURATIVE OR RHEUMATIC HEADACHE *

HUGH T. PATRICK, M.D.

CHICAGO

HISTORICAL

Thirty-odd years ago, Scandinavian masseurs discovered that in certain cases of headache there was considerable tenderness in the occipital and suboccipital regions, and sometimes in others, and that many of the patients were relieved by persistent massage.[1] Led by the sense of touch, these therapeutists concluded that the trouble lay in multiform thickenings in the forms of nodes, nodules, strands and more diffuse infiltrations. From the statements of their patients they decided that the lesions were produced by exposure, by "catching cold," by the rheumatic diathesis and by other agents still more vague. Gradually recognition of this variety of headache percolated into Germany, France and the United States, but full scientific investigation is still lacking. Our knowledge of the trouble remains nearly where it was thirty years ago, but in the meantime concerning it a lot of nonsense has been perpetrated and perpetuated. Now and again it has been artificially expanded to take in migraine, neurasthenic headache, neuralgia, in fact, practically all pain in the head except that of grave intracranial disease. In spite of

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Telling (Lancet, London, 1911, 1, 154) says that in 1816 Balfour described "nodular myositis," and that in 1876 Uno Helleday, a Swede, published an important paper on the subject.

vague ideas and nonsense, the fact that this rheumatic or indurative headache exists will become apparent to any careful observer. Though not very common, it is far from rare. To know about it is worth while, because if not recognized it may easily be mistaken for serious intracranial disease or for an unimportant functional headache, and because if not correctly treated, it may continue for months and years, while proper treatment practically always cures it. Since it has been made too inclusive by some authors, one must be cautious in taking clinical descriptions from the literature. Hence the following is based principally on my own experience.

SYMPTOMS

Rheumatic or indurative headache may be acute, but most cases are subacute or chronic — a matter of many weeks or months, not rarely of years. With Auerbach[2] I agree that the majority of the patients are women, but the preponderance is not great — about four to three. The disease seems to be rare in persons under 20 years of age, is not unusual in those under 30, but more than half of the patients are over 40.

It is a real pain; it hurts. This is emphasized because the subacute or chronic headache of neurasthenia or psychasthenia and of many of the mild psychoses, though bitterly complained of, is not a real pain but a distressing discomfort. The real pain may be intense, especially in the acute cases, or only nagging, and it may keep the patient awake at night. Whether intense or rather severe, or merely an aching soreness, it may be described as a steady pain with remissions, or intermissions, and exacerbations. It has neither the instantaneous shoots nor the brief excruciating paroxysms lasting a few seconds, with perfect calm between, so typical of trifacial neuralgia. Nor does it come in definite, severe attacks, continuous for from six to forty-eight hours with free intervals of weeks, as does migraine. Nausea and vomiting do not enter the symptomatology. In the acute cases, the pain never ceases but always fluctuates. In the subacute cases complete intermissions are few and short; remissions are longer but rarely for more than a few days. In this respect the chronic ones may be likened to chronic arthritis which has bad days, better days and good days, but in which more or less soreness is always there and the patient is ever with the feeling that bad pain is impending. Like the pain of sinus disease, rheumatic headache may be worse during one part of the twenty-four hours, and it may be almost limited to this period. Consequently, like sinus headache, I think it has sometimes been thought to be due to malaria. On the whole, it is apt to be worse in the afternoons or evenings.

The location of the pain is of some importance. Never is it frontal or vertical alone, rarely temporal; especially is it occipital or suboccipital, though from this region it may radiate to the vertex, the frontal or the temporal areas or to all of them. I have known it to be limited to the parietal region, but this is unusual. It is more often bilateral than unilateral. Notable is the somewhat exceptional fact that while the patient speaks of his pain as headache, it is almost confined to the back of the neck with a little radiation upward. This circumstance is sometimes so striking that I have labeled the cases "arthritic headache." That is to say, there is apparently no trouble above the occipito-atloid joint, while obviously there is trouble in or (and) below this point. The pain felt above is either referred pain or due to irritation of the occipital nerves.[3] At times it may be produced by pressure in the upper neck. Not rarely the pains radiate toward the shoulders or down the back, and subscapular pain may be present.

Of great significance is the presence of tenderness to pressure. There is none of the surface sensitiveness to touch sometimes present after an attack of migraine, nor is the head sensitive to heavy percussion (with the fist) as it sometimes is in sinus disease, but rather deep pressure or firm stroking in some place or places hurts. These places are especially the lower occiput and upper neck, but they vary a good deal. Particularly to be examined are the muscular insertions on the occiput, the upper neck at the rear and sides, and the occipital aponeurosis of the occipitofrontalis. Quite frequently the trapezius and even the sternomastoid are tender, and not rarely the parietal or temporal muscles.

As already noted, the discoverers of this headache always found exudative lumps or nodules, emphasized by most subsequent writers. I am sure the average practitioner will not often find them. As a clinical feature, they may be ignored. The tenderness suffices. But of this, more in connection with the pathology.

If indurative headache really is a rheumatic affection, one would expect frequently to find other evidences of so-called rheumatism. And such is the case. Probably this is most frequently evidenced by pain on movement of the neck. This may be constant or only off and on, and may be caused by only one or by several movements. Especially to be tried are extreme rotation and lateral flexion, passive, active and against resistance. In other words, in rheumatic headache there is often involvement of the joints or muscles and ligaments of the neck. Although this is the most frequent concomitant, spinal joint lower down, shoulder, subscapular region, hip or even smaller joints may be implicated. Because the headache is the crying complaint, the patient may say nothing of the other troubles. They have to be looked for. Maybe they have preceded the headache and for the time being have disappeared.

Like other rheumatic troubles, indurative headache is apt to be worse after exposure to cold, after "catching cold," and during changeable weather. Cold applications generally aggravate, while heat alleviates it. It is increased by stooping, straining and coughing, generally by physical exertion, and rather rarely by jolting or jarring. Frequently it is increased by mental application and consequently interferes with intellectual concentration.

What I believe to be two important findings, fever and leukocytosis, perhaps would better be considered in connection with the pathology.

PATHOLOGY

As noted before, the disease has always been considered to lie in the nodes or strands: the *Knötchen* or *Schwielen* of the Germans. Of all the authors consulted, no one seems to doubt their presence and specificity unless it be Telling.[4] Assuredly I am in no position to assert what a skilled palpator assisted by liberal lubrication (often urgently recommended) may or may not be able to feel. But I frankly avow my skepticism. I think the nodules as generally described have no analogy in disease elsewhere in the body, and not often have I been able to feel them. My experience with masseurs is that they nearly always feel something—abnormal. Norström,[5] one of the first and best known writers on this subject, naively advises one to examine for the nodules during the attack of pain, as otherwise they may not be found. Obviously this means that the observer does not feel them but the patient does. Another voluminous and authoritative writer[6] says that the nodules are sometimes the size of a grain of sand (*Sandkorn*), and still others claim to palpate the ganglions of the cervical sympathetic. In the presence of these statements, a doubt seems to be not unreasonable. Furthermore, with the aid of a lubricant, it is surprising what a lot of little irregularities, kernels, strands and the like may be felt in the normal person, not to speak of lymphatic glands, which very often are palpable in persons with indurative headache — for a very good reason, as we presently shall see. There is no doubt whatsoever about the tenderness, and I have no doubt that often there are infiltrations more or less localized or diffuse; but the universality of the nodes I believe to be apocryphal. Their only real demonstration, so far as I know, is that of Auerbach.[2] From an old woman he cut out a node (*Knötchen*) the size of a hazelnut kernel. It showed increase of connective tissue, and the nerve endings apparently encircled by connective tissue. But in the muscles of a woman of the same age with no signs of indurative headache who died of pneumonia he found an exactly similar thing. In short, these localized lumps and thickenings sorely need investigation by real pathologists. Müller[6] complains that in muscular rheumatism masseurs always find something palpable, while internists assert that there are no ascertainable organic changes. Probably both have something to learn.

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[2] Auerbach, S.: Der Kopfschmerz, Berlin, 1912.

[3] The same sort of pain may be due to other causes. Gordon Holmes (Headaches of Organic Origin, Practitioner, London, 1913, 90, 968) relates an interesting case of headache due to tuberculous caries of the "highest cervical vertebrae."

[4] Telling, W. H. M.: Nodular Fibromyositis, Lancet, London, 1911, 7, 154-158.

But nodules or no nodules, what is the cause of rheumatic headache and what is its pathology? For me, the obviously reasonable answer has come to be that the cause is an infection and the pathology probably microbic invasion of the tissues involved with the consequent reaction. And yet this idea seems to have occurred to no one very clearly, though two writers closely approach it. So good a man as Edinger,[7] who, indeed, first directed my attention to this affection some sixteen years ago, in relating a case casually mentions that the patient had frequent "colds" due to exposure to drafts where she worked. Seemingly never thinking of infection but only of the cold draft he says, "The pain is caused by getting chilled." Hartenberg[8] comes much closer. Evidently, he had a very good conception of the nature of the trouble. He says it is only part of a "pathologic process much more extended." Also he noted the concomitant arthritis of the cervical spine and swelling of lymphatic glands. Furthermore, he states that infectious diseases rarely fail to make the headache worse, and it is worthy of remark that the infections he instances are not typhoid, pneumonia and measles, but grip, coryza, pharyngitis and tonsillitis. Finally, he concludes that indurative headache, of which he speaks as "cellulitic" headache, is a "toxi-infection" from the nose or throat; that is, due to the local action of toxins arising from an infection elsewhere in the body. Telling[4] is the other author I have found who seems to have had a proper conception of the pathology. He says it is "an inflammatory exudation into fibrous tissues . . . the result either of direct microbic action or more probably of toxins."

Evidently what we need is competent histologic and bacteriologic study of the disease, with observations on the blood and on the tissues. Along this line I have nothing to offer, but some clinical observations are suggestive. In no article that I have consulted is there one word about temperature or leukocytosis. Nevertheless, more than five years ago I began to examine for these indications or results of infection. The findings are in harmony with other signs indicating an infectious process. In the acute cases, fever and leukocytosis are never absent. In the chronic cases frequently they are; but repeated examinations, especially during exacerbations of the pain, will nearly always at one time or another show a temperature of from 99 to 100 F. and a white count of from 8,600 to 9,000 or 10,000.[9] The subacute cases range between the acute and the chronic.

But even in fairly acute cases with obvious infection, both temperature and white count may be surprisingly low. In a perfectly typical case in the person of a lad of 15 years who had had a streptococcal throat, large glands in the neck, an abscess which had kept him in bed for six weeks, and a perfectly obvious arthritis of the knee, the temperature ranged from 99 to 100 F., and the leukocyte count was only 7,250. Within forty-eight hours after removal of the tonsils, the headache which had been "nearly driving him crazy" had disappeared for good, as had also the fever. Naturally, the next question is, Can this supposititious source of infection be found? I have not always succeeded in finding it, especially in the chronic cases; in the acute ones, I think I have. The source is practically always in the head — the throat, teeth, sinus, ear or suppurative rhinitis with poor drainage. Also bearing on the pathology is the experience that in acute and sometimes in subacute cases removal of this supposititious focus promptly cures the headache, with disappearance of the fever and of the leukocytosis. For instance, a young woman who had been suffering severely for two years promptly recovered when the tonsils were removed.

But I hasten to add that it is not always easy to decide where the focus is. One woman, aged 60, who gave a history of tonsillitis, had an old discharging ear and infected teeth. She got well after removal of the teeth. A woman, aged 53, who had had indurative headache for two and a half years, had suspicious teeth, and pus in the tonsils. She preferred to have the teeth out first. There was no improvement. Some months later the tonsils were taken out and soon she was greatly improved. Another woman, aged 45, had had an operation on the frontal and ethmoid sinuses ten years before. Not long afterward she had a crop

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5. Norström, Gustav: Der chronische Kopfschmerz und seine Behandlung durch Massage, Leipzig, 1910.
6. Müller, A.: Der Untersuchungsbefund am rheumatisch erkrankten Muskel, Ztschr. f. klin. Med., *1911*, **74**, *34-73*.
7. Edinger, L.: Von den *Kopfschmerzen* und der Migraine, Deutsch. Klin., 1901, **6** (translation, Modern Clinical Medicine, 1908, volume on Nervous Diseases).
8. Hartenberg, M.: Les céphalées musculaires ou cellulitiques, Jour. de méd. de Paris, 1914, **26**, 187-190.
9. Just what constitutes pathologic leukocytosis in a given patient at a given time is difficult, sometimes impossible, to determine. Drawing conclusions from white counts of 8,600 to 10,000 is hazardous. But repeated accurate examinations compared with temperature and other symptoms will help to eliminate error.

of boils, later a carbuncle and then a rectal abscess. Later still, an abscess of the breast appeared. There was no history of tonsillitis, and yet her headache of nine months' duration disappeared after tonsillectomy. One patient, aged 50, who had had her headache for years, had poor nasal drainage and probably sinusitis. The sinuses could not be properly explored without operation on the septum, and as we found many infected teeth, they were extracted as the first move. The result was great relief but not complete cure, so I suppose the nose and sinuses will have to come next.

As might be expected, many times instead of an embarrassment of riches in the way of infectious foci, no focus is apparent. A woman, aged 36, seemed to have an indurative headache radiating into the mastoid region, but no focus could be found. Especially may it be noted that a well known aurist found nothing in throat or ears. Some weeks later, the patient developed double otitis media. Paracentesis of both drums was made, and with subsidence of the otitis, the headache disappeared. I cannot resist a feeling that the infection was there all the time but that it was not locally apparent.

DIAGNOSIS

Regarding diagnosis, only a few suggestions seem to be indicated. As noted, the severity and persistence of the pain are strongly suggestive of grave organic disease. Indeed, I have known indurative headache to be mistaken for meningitis and for brain tumor, with the proposal of an operation for the latter. The distinctive features of indurative headache with normal spinal fluid, absence of Kernig's sign and of cranial nerve involvement will exclude the former. Absence of optic neuritis, of vomiting and of evidence of invasion of the cerebrum, cerebellum or cranial nerves, will exclude the latter. Severe headache, especially if worse at night, with localized tenderness, is always suggestive of syphilis. But if one has in mind the symptoms of the two diseases, differentiation ordinarily is easy. Serologic examination of blood and spinal fluid, however, may be needed for a definite conclusion.

In my experience, indurative headache is often found in connection with some other headache, especially migraine, the former being added to the latter. Then the rheumatic headache may not be recognized for what it is, but is thought to be an aggravation or variation of the migraine. Only care is needed for the differentiation. Again, a chronic neurasthenic or psychasthenic, who for years has had more or less discomfort, acquires an infection from which he gets a rheumatic headache. His complaints become more insistent and bitter, but it is thought to be the old thing, and consequently he receives no appropriate treatment. The disease is all the more misleading in this sort of patient because, as before noted, the pain may be made worse by mental or physical exertion and hence is believed to be simply a form of nervous exhaustion. Naturally, too, such a patient often has numerous phobias based on his pain. He fears that he is going to lose his mind or have a stroke, or that he is developing a brain tumor, etc., all of which leads to the conclusion that he is "hipped." Then comes a rest cure or neglect. It is in such cases especially that careful examinations are needed and that the discovery of a slight rise in temperature and in leukocyte count are of value.

Remembering that sinusitis may be the infectious focus giving rise to rheumatic headache, one naturally recognizes that the pain of both may be coexistent, but that they may have to be clinically separated. Acute or chronic middle ear disease and mastoid inflammation may be complicated by a rheumatic headache which it is important to recognize as a separate factor, the headache having been caused by the infection which started the otitis, or by the latter, as a secondary focus. I have known the mastoid to be opened for an indurative headache in which the pain and tenderness extended unusually far forward.

I might add that at least once and probably several times, I have seen face pain analogous to indurative headache.

TREATMENT

Treatment may be divided into rational and empiric. If, as I believe, the trouble always arises from infection, the rational move is to find the origin and remove it. In the acute cases this alone will suffice. At times the relief is strikingly prompt and complete, being felt within forty-eight hours. In the subacute cases, one generally needs to add what has been found to be good: rest, heat and massage. Acetylsalicyclic acid and like remedies are not often of much use, though sometimes they seem to afford temporary relief. In the chronic cases one cannot always find a causative focus or, if it has presumably been found and extirpated, the pain continues. These are the cases in which repeated and prolonged applications of heat and persistent massage, the latter preferably immediately after application of heat for an hour or more, are indicated. The massage must be rather firm and deep, must be repeated about three times a week, and must be persisted in sometimes for many weeks. Good manual massage is infinitely preferable to mechanical vibration. Occasionally I have used the thermocautery with benefit. The point should be white hot and touched lightly and rapidly over the back of the neck as high up as the hair line will permit, the points of contact being from about one-eighth to one-fourth inch apart. If properly done, the burns need no dressing and the application can be repeated in from five to ten days. It is well to do a limited area one day and an adjoining one the next.

The prognosis is good — very much better than in chronic arthritis.[10]

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[10] In addition to the references already given, the following will be found of interest:

Auerbach, S.: Zum Wesen des sogen. Knötchen oder Schwielenkopfschmerzes, Deutsch. Ztschr. f. Nervenh., 1911, **42**, 399-408; Der Knötchen oder Schwielenkopfschmerz, Samml. klin. Vortr., No. 361.

Müller, A.: Der Muskuläre Kopfschmerz, Deutsch. Ztschr. f. Nervenh., 1910, **40**, 235-290; Der Muskulare Kopfschmerz, Leipzig, 1911.

Maverick, A.: Indurative Headache, New York Med. Jour., 1913, **97**, 491.

Campbell, Harry: Discussion on Headache, Brit. Med. Jour., 1914, **2**, 578-583.

Henschen, S. E.: Studier öfver Hufondets Nevralgier, Upsala, 1881.

Rosenbach, O.: Ueber die auf myopathischer Basis beruhende Form der Migraine und über myopathische Cardalgie, Deutsch. med. Wchnschr., 1886.

Klein, E.: Handbuch der Massage und Heilgymnastik, Vienna and Leipzig, 1896.

Peritz, G.: Ueber die Ætiologie und Therapie des neurasthenischen Kopfschmerzes, des neurasthenischen Schwindels und der Migräne, Med. Klin., 1906, 1201-1203. Neuralgie, Myalgie, Berl. klin. Wchnschr., 1907, **44**, 952-956.

Cornelius, R.: Nervenpunkte, ihre Entstehung, Bedeutung und Behandlung mittels Nervenmassage, Leipzig, 1909.

Stockman, Ralph: The Causes, Pathology and Treatment of Chronic Rheumatism, Edinburgh Med. Jour., 1904, N. S. **15**, 107.

Yawger, N. S.: Chronic Rheumatic Myositis, Lancet, London, 1909, **2**, 292; Indurative Headache, The Journal A. M. A., April 24, 1909, 1316-1319.

Beling, C. C.: Indurative Headache, Tr. Med. Soc. New Jersey, June, 1912.

Rose, F.: La céphalée musculaire, Semaine méd., 1911, **31**, 145-148.

ABSTRACT OF DISCUSSION

Dr. George E. Shambaugh, Chicago: Rhinologists are very alert when they hear a patient complain of headaches and at once examine the patient's nose and accessory sinuses. It would be very strange if he did not run across an anatomic variation of the septum. You will find it nine times out of ten, although the variation may not be conspicuous in all cases. I am becoming more and more skeptical, however, as to whether that anatomic variation can ever cause headaches. The type of anatomic variation which I believe may cause headache is the deflection which projects against the outer wall of the nose. I have never seen a case with that kind of anatomic variation corrected that the headaches did not disappear. It is very doubtful whether any anatomic variation of the septum has anything to do with headaches, except as it may be a factor in the cause of sinus trouble.

The question of the etiologic relationship of infection of the nasal sinuses to headache is very interesting. Infection in the sinuses except the frontal causes headaches almost without exception. The location of the headache is often assumed to be a good method of locating the involved sinus, but, as a matter of fact, any form of accessory sinus trouble may cause frontal headaches. Recently I had a case of one-sided headache, frontal in character, of long duration; pus was seen coming from middle meatus, but it was a case of maxillary sinus trouble. The frontal sinus was not affected at all. The headache disappeared when the maxillary sinus trouble was removed. But the most interesting question in regard to headache and sinus troubles is this: Can we have closure of a sinus which we cannot diagnose and yet have it as a cause of headache? Many rhinologists forget that this condition may be present, although it occurs rarely.

Headaches due to the focal infections that Dr. Patrick speaks of are not at all unusual. I have had the experience he relates, where the removal of an infected tonsil cleared up the patient's long-standing headaches. It is difficult to exclude entirely the possibility of the tonsils being the seat of a chronic focus of infection when there is no history of tonsillitis. Where the tonsils are large, that is easy enough, but we often find small tonsils where there is distinct evidence of pus. We also find tonsils, with no history of tonsillitis and where physical examinations fail to disclose any evidence of this trouble, yet when we remove these tonsils, we open large abscesses.

Dr. H. W. Loeb, St. Louis: In discussing this question we should consider headaches from two standpoints: those which are of local origin and those which are of focal origin. Given an abnormal condition of one of the sinuses, and we expect the typical sinus headache. Headache may be due to absorption of toxins from that focus, but it may not be a local headache. Local headaches are usually limited to one side; they come on generally in the morning, and after a certain period disappear This type of common localized headache can practically always be relieved by operation. In addition to the group of headaches which the essayist described under the name of indurated headaches, are the headaches of focal origin, the foci being either in the nose, tonsils or teeth.

Dr. Oliver Tydings, Chicago: My conception of what causes headache and what shall be done to relieve it may differ from yours. Headache may be due to nose trouble, but other pathologic conditions should be eliminated. The wife of a physician was subject to headaches for years. She consulted a gynecologist. She was curetted; her headaches continued. Then she consulted a neurologist, an ophthalmologist and a nose and throat man. The rest cure and glasses were prescribed. After three months in a hospital she returned in the same condition. She then consulted another neurologist, and a diagnosis of meningitis was made. She returned home feeling that the end was near. When proper glasses were prescribed, the nose corrected and the ethmoid opened up, the headaches were relieved. Therefore, *do not* operate on a nose for the relief of headaches until you have eliminated other causes.

Dr. Arthur M. Corwin, Chicago: We have had to deal with headaches for many years. We have cured some but not all of them. As Dr. Loeb stated, headaches are sometimes of focal origin. I wonder whether infective or infectious headaches would not more particularly cover, not only the sinus headache, but headaches due to all the infectious foci? We know that taking out a pair of tonsils or establishing a drain for the sinus or some other focus of infection will cure some headaches in a few hours. Why, if they are indurative, is that cure so prompt? I do not believe that "induration" explains the cause of these headaches.

I think Dr. Shambaugh has gone too far when he says that there is no anatomic deviation from the normal within the nose that will cause headache. I am sure you have all cured what is known as pressure headaches. Many of these headaches seem to be infectious when they are not; they are mechanical pressure headaches. These cases must be eliminated in discussing this question of headaches.

Dr. Charles D. Thomas, Peoria, Ill.: I am a living example of indurative headaches, and I am ready to verify many of the affirmations made by Dr. Patrick in his article. One symptom that he did not speak of, that I have constantly, is the crepitation at the occipital region. I formerly had very decided crepitation in my knee when I went up or down stairs, but after I had my infected tonsils removed, this crepitation disappeared entirely; but when I move my head, especially to the right, I still have crepitation, which is so very noisy that it seems to me every one can hear it. I do not know if that has any particular significance except that it seems to me that it is an infective condition. The state of the weather has a great deal to do with it. For instance, Monday I got my feet wet, and as it was very chilly and I had no overcoat, I spent Tuesday in bed with a headache. A chill or catching cold invariably brings on this headache. The question of infection in my own case is somewhat doubtful. Dr. Shambaugh has examined me thoroughly as regards infection of any of the sinuses, I had my tonsils taken out, I have been roentgenographed and no infected sinus has ever been demonstrated. I believe I have subacute infection of my maxillary sinuses, because some years ago I had a very sharp attack of sinusitis.

As to the question of its being bilateral, my trouble is entirely unilateral. It always comes on the right side; the pressure on the nerve is excruciating; the pain is continuous, and I have the enlarged lymph nodes Dr. Patrick mentioned. My trouble comes on almost invariably in the afternoon or early in the morning. I have a warning of it fairly early, about 11:30 or 12, and sometimes by taking medicine, especially alkalis—I take 100 grains of sodium bicarbonate, sometimes with magnesium—I can ward it off.

Dr. Hugh T. Patrick, Chicago: Why indurative? I do not know. I did not coin the term at all. It is a very poor name for this headache, but it has been used for it. I added rheumatic because it has sometimes been called rheumatic. In the absence of any better term I would prefer to call them rheumatic headaches, because rheumatism comes from an infectious process, and this is a headache due to infection, in my opinion. To call it an infected headache would not do, because there are so many headaches due to infection which are not this headache. It has been claimed that this is a sort of vague, indefinite kind of thing. I am sorry I did not make myself understood. It is exceedingly definite. We seldom have any difficulty in deciding that our patients have an indurative rheumatic headache. It is nearly always in the back of the head. There is practically always evidence of infection, and the patient gets well when the infection is removed. It is not to be confused with a sinus headache nor with a pressure headache, nor with a headache due to generalized infection, with fever, etc., which may occur in any infection, such as typhoid, gallbladder disease, measles or tonsillitis. This is a localized process and I do not know how one of these headaches can disappear in forty-eight hours. It does not seem reasonable. I am glad Dr. Thomas used the word "lymph nodes." Frequently that term is applied to the lymphatic nodes in the neck, but these are not the nodules that I have been describing as being peculiar and specific. They are not of particular importance in either the diagnosis or pathology of this condition. I tried to emphasize that I do not know a whole lot about it, but my paper is largely suggestive; if these headaches do occur, they are a distinct entity, and the patients get well when treated properly.

INTERPRETATION OF NEGATIVE LABORATORY FINDINGS IN SYPHILIS

WITH SPECIAL REFERENCE TO TREATMENT *

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We begin the consideration of this subject with several postulates:

1. A positive Wassermann reaction in the temperate zone spells syphilis, and only syphilis.
2. A negative or mild degree Wassermann reaction does not, by any means, indicate the absence of syphilis.
3. Syphilis of the central nervous system is only part of general constitutional syphilis; it never occurs as a real entity and, furthermore, the nervous system is invaded early and not late, as is generally supposed.
4. It is absolutely necessary, especially in doubtful cases, to correlate laboratory and clinical data. The Wassermann and other serologic tests are merely symptoms, which, like other physical signs, may or may not be present. They are extremely valuable, but not as determining as the objective clinical syndrome, notably when not definitely manifest. The laboratory is not a short cut to diagnosis.
5. Many laboratorians, while they may be excellent technicians, are incapable of determining the exact interpretation of the serologic reaction in debatable or doubtful cases. This decision rests with the clinician.
6. Even with a positive Wassermann reaction a given syndrome in a known syphilitic patient is not always due to syphilis.

Each of these postulates requires some elucidation and comment.

Postulate 1.—*A positive Wassermann reaction in the temperate zone denotes syphilis only.*

Admitting that certain exceptions to the above given rule exist, and that a positive Wassermann reaction of moderate, or even high degree, occurs in the temperate zone, in conditions other than syphilis, such as pronounced malaria and other plasmodial affections, and in conditions of tropical disease migrate into the temperate zone, and again admitting that minor degrees of a positive Wassermann reaction may occur in certain other debatable conditions, nevertheless, as a routine dictum, we may safely assert that a positive Wassermann reaction spells syphilis and syphilis only. The exceptional conditions differ so markedly clinically, that there should be no difficulty in ruling between them.

Recently it has been asserted that a positive blood-serum Wassermann reaction occurs in tuberculosis. It were well to bear in mind that there is no antagonism between syphilis and tuberculosis. The two may occur coincidentally in the same subject; they often do, in fact. Spinal fluid research in tuberculosis has, I believe, not been sufficiently carried on to decide whether the alleged blood serum claim can be upheld.

Postulate 2.—*A negative Wassermann reaction does not indicate absence of syphilis.*

The negative phase requires careful analysis, and there are several different aspects involved in the negative side which require consideration. Before entering on their discussion, it will be well to establish clearly in our minds, certain facts in respect to syphilis of the nervous system, some of which, at least, are not generally recognized. This involves, in a general way, a discussion of Postulates 3, 4 and 5.

Postulates 3, 4 and 5.—The central nervous system is never, alone, involved in this disease; the other body tissues and organs are affected by it, inasmuch as syphilis is always a constitutional affection. Clinically, the symptomatology from the side of the nervous system may preponderate, and so far dominate, as to force the evidence of participation of other, even important, organs, into the background. However, the reverse is more likely to prove true, and we are much more likely to fail to realize the intrinsic participation of the central nervous system in the ordinary case of syphilis, because no signs of organic involvement of the brain or cord are manifested.

As a matter of fact, the central nervous system is involved, intrinsically, in every case of syphilis and, furthermore, it is involved early in the course of the disease and not late, as is commonly supposed. It is true that lesions, deep within the tissue of the neural system, are apt to be late manifestations, though not infrequently severe organic lesions of brain and cord occur within a few weeks of the initial infection. The syphilotoxins of the so-called secondary stage, however, affect the nervous system along with all the rest of the body organs, and it is at this period, especially, that a recognition of this fact by the physician may prove of the utmost service to the patient. Examination of the spinal fluid along with the examination of the blood, in the early stages of the disease, is far more important than in the later stages, but such examination is not ordinarily made.

In the syphilotoxic or so-called secondary stage, we are prone to encounter the characteristic evidence of toxemia in the mucoid and skin eruptions (which are in every sense analogous to the mucoid and skin eruptions of the infectious exanthems) associated with headache and often vertigo; the latter symptoms are strict indications of involvement of the nervous system and their occurence calls for investigation of the spinal fluid, as well as the blood. If there is any virtue or value in intraspinal medication, and I am not yet fully convinced that intramedullary injections possess unquestionable advantage, it should be applied at this stage, instead of, as now, waiting for the development of organic involvement of brain and cord, usually several years after the primary effect, when even intensive treatment is apt to fail. The most favorable side of our modern intensive specific therapy lies in the prevention of the disastrous late lesions of the nervous system, rather than in any attempt to arrest or to cure them after they have once become established. However, when, late or early, lesions of the brain and cord become manifest, whether of focal or diffuse type, we must again remember that the pathology affects the entire system. Tabes and other tract affections of the cord, transverse and diffuse myelitis, paresis and taboparesis are all clinical types of neural syphilis, but are merely part of general constitutional syphilis.

Years ago, prior to our present laboratory methods, good clinicians and, sometimes, mediocre ones, were perfectly capable of diagnosing syphilis in all of its aspects and relied entirely on their knowledge and clinical experience to arrive at definite conclusions. Today, they continue to rely on their keen diagnostic sense, but wisely substantiate their clinical conclusions by every laboratory test of value, though they are not absolutely controlled, or guided, by the laboratory data, which they recognize only as a part of thorough physical examination and not as a short cut to diagnosis. Unfortunately the reverse is apt to be true among busy general practitioners or so-called specialists, who either have not the ability, or the sense of deep personal responsibility in diagnosis, and they are inclined blindly to accept the verdict of the laboratory and be guided by it, without taking into consideration the clinical evidence, either in the affirmative or negative. The general run of the profession has not yet grasped the fact that all laboratory tests are relative and not absolute in value.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

This is an age of strict scientific research, as it should be, particularly in medicine and surgery, and it becomes all the more necessary, on that account, to scrutinize carefully the reliability of the source of information on which good clinicians await only corroborative evidence and poor or careless clinicians place their boundless faith. As a general thing, the relationship between laboratorian and clinician is apt to be entirely too loose; this is particularly true as respects the common run of the profession and the large commercial laboratories, often far distant from the physician who sends in his material for analysis.

The careful diagnostician assures himself, to the largest degree, of the capability of the man to whom he entrusts his laboratory work, and after convincing himself of the thoroughness, technical ability and absolute interpretative reliability of the laboratorian, works with the latter in complete harmony and teamplay, consults with him in every sense, debating pro and con the clinical and laboratory evidence in any doubtful case. There is here the much-to-be-desired and necessary cooperation, essential to completeness of diagnosis and safety of the patient, and this is manifestly impossible of attainment in the strictly commercial laboratories, very few of which are reliable.

The first important essential, therefore, is to assure oneself of the absolute technical and interpretative reliability of the serologist or of the laboratory to whom our serums are submitted.

Now how shall we analyze his report? What does a positive Wassermann reaction denote? Does it signify that the disease itself is active or that the physical system is conducting an active fight against the malady? Does a negative Wassermann reaction indicate no syphilis or that the spirochetes are dormant and the body resistance supreme for the moment? Does a positive + + +, for instance, signify a major disease activity and minor + resistance or practically the reverse? Furthermore, who shall decide that a + or even a + + represents a positive Wassermann?

At present, we construe a positive (+ + or greater) report merely into necessity for specific treatment; and that is, after all, the most important, outstanding factor from the patient's point of view.

What then, shall we, as physicians do, in the face of a negative laboratory dictum, especially in a case of debatable type, either with or without ascertainable history of previous infection.

May we rest secure and say to the patient, "No syphilis, no treatment"?

It is an extremely important matter, both to patient and medical adviser, to determine this question. On the one hand, we might subject a nonsyphilitic subject to time-taking, very expensive treatment, such as would be indicated were a positive Wassermann reaction present. On the other, we would seriously err in counseling no specific treatment, when the patient in reality was suffering with syphilis and required intensive therapy.

In my experience, it has been far more frequent to mistake a negative or mild degree Wassermann reaction as an indication for no treatment.

Repeatedly, I have seen patients who had been advised, to their great, sometimes irreparable, damage, that antisyphilitic treatment was unnecessary, by physicians of presumed excellent standing, purely on the strength of a negative serum Wassermann reaction—most frequently when no spinal fluid examination had been made. When, sometimes months, sometimes years, later, these same patients came into my care, there was manifestly distinct, clinically recognizable, syphilis of the nervous system, which might have been prevented had proper treatment been instituted in the face of a negative Wassermann reaction years before.

It is claimed by many laboratories and syphilographers that a serum Wassermann reaction may be provoked in a suspicious case by a small intravenous dose of arsphenamin twenty-four hours previously given, or by moderate doses of iodids for a period of from two to three weeks. This provocative possibility is denied by many, but, at present, it would appear safest in the interests of the patient, and of diagnosis, to subject the suspect to such measures as might insure a more definite laboratory finding. Here a note of warning may well be sounded. Undoubtedly, at times, indiscreet or tactless words by the physician affect the psychology of certain persons deleteriously, so that a word of caution may not be out of place. Unless the doctor is reasonably certain that syphilis is really in play, he should refrain from alarming any patient. The physician should study the individual mental attitude of every person consulting him and be certain that his advice to the patient be not misconstrued. We talk too glibly about the Wassermann test.

The only safe guide in doubtful cases is to remember that all laboratory tests, whether of blood or spinal fluid, are merely symptoms, which like any other symptom or group of symptoms, may at times be absent. Like most cardinal signs in any disease, the positive Wassermann reaction will usually be found present in the vast majority of patients with active syphilis, but is frequently absent or only faintly indicated, even when the disease is manifestly in play.

That this is true is clearly substantiated by the reaction of the blood serum—less frequently the cerebrospinal fluid—in concrete instances, as shown by the Wassermann reaction before, during and after treatment, intravenously, alone, or in combination with intramedullary injections.

It is a common experience to find the Wassermann reaction varying in degree in any given case or group of cases. Often it is reduced to nil under the influence of arsphenamin, to again become active while yet the patient is under intense therapy. It is this very fact which renders it difficult to determine just when the case has been sufficiently treated. The mere reduction in strength of a one-time positive Wassermann reaction should not alone constitute a criterion of cure.

The clinical syndrome, otherwise, must improve *pari passu* with the serologic findings. If this be not the case, then little or no headway against the spirochetes can be counted on.

If the clinical syndrome in specific cases be favorably affected, there is good reason to believe that the patient is deriving benefit from treatment, even though the laboratory findings fail to vary proportionately. Up to date, however, the laboratory data form our best corroborative index as to the apparent security of the patient from probable reactivation.

It should be borne in mind that serum reactions are much more liable to vary than do the spinal fluid tests. The latter appear the more trustworthy, not only because of their greater stability, but also by reason of their multiplicity and, therefore, the possibility of checking up and correlating the other tests—leukocyte count, globulin increase and colloidal gold test—with the Wassermann.

The blood serum Wassermann test is of great diagnostic value, but of questionable prognostic worth. The spinal fluid tests are not alone diagnostic in character, but assume both differential and prognostic virtue. This is notably true of the Lange (colloidal gold) color curve. By it, when accurately done, we are enabled to determine with some assurance of certainty, the character of the pathologic process transpiring in brain and cord, differentiating between inflammatory encephalitic-meningeal affections and probable degenerative tissue changes. True, this is not absolutely certain, but it forms a fairly reliable working index differentially and as to effects of treatment, and up to a certain point, as to whether treatment would be effective enough to warrant trial.

Where clear-cut degeneration of brain cells, as in true paresis, or cord tract and transverse lesions, tabosyphilis and myelitis syphilitica, is manifest, the effect of treatment is so questionable that one should gravely consider matters of time and expense among those who can ill afford to make financial sacrifices. Unfortunately, no matter how expert the clinician, we cannot with positiveness assert how much, in a given neurologic syphilitic syndrome, depends on inflammation and how much on degeneration. The experience in the past few years of intensive therapy, both with and without conjoined intraspinal treatment, should influence us always to give the patient the benefit of at least a trial, unless the case is so far advanced as to be apparently hopeless, by all standards of large experience, so that monetary sacrifice would be unjustified.

Postulate 6.—*Even with a positive Wassermann reaction, a given syndrome in a known syphilitic may not be due to syphilis.*

Not infrequently we find syphilitics suffering from nonsyphilitic affections, and it often becomes a difficult problem to solve therapeutically. Quite naturally the physician would be prone to conclude that such patients require intensive specific measures, and very likely many of them do, but the complex against which efforts are directed fails to yield. If this transpire, the doctor should not persist in the opinion that syphilis is responsible, but should direct his research otherwise. He is, however, always erring on the side of safety to bar out syphilis by adequate therapeutic attempt.

Another point to remember is that extraneous, often accidental, factors, not infrequently start a hitherto latent syphilis into activity. This, in my experience, has been particularly true in traumatisms to the head and back, to sun and heat stroke and to acute infections, such as grip, which are peculiarly liable to affect the nervous system. At the present time, too, we should not lose sight of the activating influence of war injuries and of war strain.

A final and extremely important phase of this entire subject is presented by the researches of Warthin,[1] who has demonstrated spirochetes, postmortem, in practically every body-organ and tissue in many persons, who, intra vitam, had repeatedly given negative serologic returns. Are we to infer from Warthin's work that all our laboratory tests, and even our intensive antisyphilitic treatment, are worthless?

Unless I quite misunderstand Warthin's attitude, he has concluded that neither the Wassermann test nor any other laboratory test, as yet devised, has proved in any way trustworthy, believing that demonstrable spirochetosis exists too often to escape detection by a really valid test.

I, in common with most clinicians here and abroad, have faith in the Wassermann reaction, and other associated blood and spinal fluid reactions, always, however, weighed thoroughly in the clinical balance, but wish to emphasize the great value of Warthin's revelations in not too rashly coming to the verdict of negative serum reaction, negative syphilis.

Spirochetes in organs and tissues after death, of course, spell syphilis at some period of life, but it remains yet to be proved that these organisms, morphologically intact, may not rest indefinitely in the tissues, fixed and latent, without clinically active complexes in sequence. Warthin's work again serves well to emphasize the necessity for a test more reliable even than the Wassermann.

SUMMARY

1. A positive Wassermann reaction of blood, and especially of spinal fluid, spells syphilis and syphilis only.
2. A negative serum Wassermann reaction and even a negative spinal fluid Wassermann reaction does not strictly indicate the absence of syphilis.
3. Laboratory tests are merely clinical signs, which at times may be present or absent, like other symptoms; spinal fluid tests should always be made together with blood serum tests.
4. Correct interpretation can be made only by weighing carefully the clinical evidence, with the serologic reports, especially when the latter are negative. This cannot be too emphatically emphasized.
5. Laboratorian and clinician should hold far closer scientific relationship than is now usual. They should be mutually helpful.
6. The laboratory findings should fit into the clinical syndrome and not vice versa.
7. And unless there be wise, deliberative interpretation of laboratory data, especially negative data, in neurologic and other cases, serious errors in diagnosis and treatment will continue.

Note.—Since the foregoing was written, a paper by Drs. Larkin, Levy and Fordyce (The Journal, June 1, 1918, p. 1589) refers to this subject in most timely way. The reader is advised to study this article. Its careful perusal will serve to emphasize what has herein been stated.

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[1] Warthin, A. S.: The Persistence of Active Lesions and Spirochetes in the Tissues of Clinically Inactive or "Cured" Syphilis, Am. Jour. Med. Sc., 1916, **152**, 508.

ABSTRACT OF DISCUSSION

Dr. C. R. Ball, St. Paul: This is a subject that I have been interested in for a long time. I presented before this section the first paper on the four reactions. Since that time, in my own laboratory and clinical work, I have very carefully followed these reactions almost daily. As illustrative of one point I will relate the case of a patient, a man of 30, who had a fairly good history of having had a chancre some six years ago. When I first saw him he had not one single hair on his head; his eyebrows were gone, and his finger and toe nails had a marked degree of onychia. He stated that he had a negative serum Wassermann. I made spinal fluid tests and found the reaction serobiologically to be absolutely negative, yet the clinical symptoms would have caused one to conclude that this was a case of syphilis. He responded well to specific treatment, and in six months he had enough hair on the back of his head to require a hair-cut. So far as a cure is concerned, the reactions may be of value in determining whether or not recovery has taken place, but when we consider the patient just described we must conclude that it is not a reliable criterion.

On the other hand, we are familiar with that type of patients who come to us with positive reactions, but who look the picture of health and present no clinical symptoms. Three years ago a man came to me just after attending the funeral of his brother who had died of paresis. He had another brother suffering from locomotor ataxia, and, remembering that he had contracted syphilis some fifteen to twenty years before, he began to worry over himself. Physically and clinically he was well. He had a negative serum Wassermann, but his blood reacted typically to what we term the characteristic paretic reactions, the colloidal gold, the globulin, the cell count and the Wassermann, there being a + + + or + + + + Wassermann with the minimum amount of spinal fluid. A week or two ago I saw this man again and he was free from any symptoms and apparently in perfect condition. The longer I deal with these reactions the more I feel that their usefulness at present lies in what we get out of them in the way of diagnosis. I have been much interested in the treatment of these conditions. It seems to me that we must compare syphilis with tuberculosis. Dr. Riggs and Dr. Sterne have pointed out that syphilis is not an isolated disease of the nervous system, but that it is a constitutional disease, and that the nervous system is involved at the same time that the rest of the body is involved. Years ago we believed that to give the tuberculous patient large doses of creosote would kill the tubercle bacillus, and we have been passing through much that same phase with reference to methods of intensive treatment of syphilis.

Dr. Julius Grinker, Chicago: Most of Dr. Sterne's statements can be subscribed to because every one of us has had simliar experience with the Wassermann tests. One point on which Dr. Sterne did not lay stress, and which I wish to emphasize, is that we occasionally get a negative Wassermann in a very advanced case of syphilitic infection. Not alone does this occur occasionally in paresis, but most frequently in advanced cases of tabes. Some years ago, for the first time in Chicago, I injected five patients intraspinally, following the Swift-Ellis treatment. One case was diagnosed as tabes from the symptoms present, but it was not an advanced case. I presented the patient before the medical society as one who had improved under Swift-Ellis treatment—that this treatment had done a great deal of good, as the Wassermann was made negative after being strongly positive. This man left the hospital, and returned a year later with a most advanced type of tabes, was extremely ataxic, had Argyll Robertson pupil, intense pain, sphincter incontinence, etc. But because of the negative Wassermann test and other signs that were negative we waited for corroborative evidence. We took specimens of spinal fluid and blood, and the tests made were absolutely negative, yet the man was advanced to a very bad case of tabes and could not be cured by any treatment.

I have tried the Swift-Ellis treatment in paresis, and in one case I was extremely proud of the results. The patient was very violent, and for this reason had been thrown out of three different rest cures and one hospital. We finally succeeded in quieting his mental symptoms, he became rational and is today going about and is able to enter my office without difficulty. That patient, though he has improved mentally, has developed the physical signs more markedly after intensive treatment than before, showing that the disease relentlessly progresses just the same, causing its physical signs. Whereas he had no Argyll Robertson, although on both sides he had a sluggish pupillary light reaction, he now has a complete Argyll Robertson. How long he will live I do not know, but mentally he was benefited by the Swift-Ellis treatment, and some other patients who I am now treating, both tabetics and paretics, have shown remarkable improvement. I am still looking for the cures in paresis and tabes.

Dr. Walter Timme, New York: In this connection I wish to mention a point brought out by Dr. Sterne, namely: That in the temperate zones a positive Wassermann practically means syphilis. In the last two or three years I have had an opportunity to examine many cases of lead intoxication, largely those without peripheral lesions, affecting the central nervous system and giving the symptoms of lead encephalitis; and these cases invariably give a positive Wassermann. Sir Thomas Oliver reports the same condition as being present in the lead workers in English mines, and similar reports have come from Paris. In New York, besides our own findings, Cyrus Field has reported several such cases. Other cases have been reported from South America, with the statement that clinical syphilis could be excluded. One particular case that I have in mind may throw some light on the subject: A boy, 14 years of age, came to me suffering with what looked like juvenile paresis, and his condition had followed more or less quickly his occupation in a painter's shop, his work consisting of sandpapering off of the paint preparatory to repainting. Within a few weeks after entering on that occupation he began to show the signs of loss of memory, intense headaches, and speech disturbances, such as occur in paresis. The other members of the family were examined, and all gave a negative history and negative findings as to syphilis, yet this boy showed a positive Wassermann reaction in the blood and cerebrospinal fluid. He improved very markedly under treatment for lead intoxication. He was given no antisyphilitic treatment whatsoever, and left, not cured, but very much improved. That is a case in which syphilis had almost to be excluded, and yet it is a case corroborative of the findings of other clinicians throughout the world.

Dr. Elmer E. Southard, Boston: In respect to what Dr. Grinker said, I would ask the names of the distinguished psychiatrists and alienists who have cured paresis. I am not aware of any such cures, by men distinguished or otherwise. They may paint the topic in a rosy hue and try to encourage one, but it looks to me as if it was going far to speak of a cure.

I would like to ask Dr. Sterne what his medicolegal answer would be in a case such as that afforded by his title. I want to cite a supposititious case. A man who has been awarded money and then fallen into a paretic state, as he thought, with amnesia, with stupor, with symptoms that were undoubtedly paretic, clinically speaking, was then treated rather successfully so that all his laboratory signs, which had been positive, became negative; no mental symptoms are present and he has nothing left but the Argyll Robertson pupil. He now is earning $25 a week, but if he could get into a certain trade he would be able to make much more money. He came to our hospital for a letter of approval. What is the answer to this question?

Dr. Andrew L. Skoog, Kansas City: Dr. Sterne has called attention to several valuable points. Regarding the opinions of general practitioners concerning the value of laboratory findings in these cases, it has been my observation that their views are quite variable. You will find one group of practitioners who throw aside the laboratory findings entirely; another group of men, as indicated here, rely on the laboratory findings alone. As Dr. Sterne has pointed out, that is absurd, in that not infrequently we get negative findings in both blood and spinal fluid, whereas there are undoubtedly positive evidences of syphilitic disease. There is no doubt but that the spinal fluid analysis is of more importance than the blood analysis for syphilis of the central nervous system. When we analyze the seat of the disease we must bear in mind that syphilis is a disease that is attracted to the blood vessels and neighboring tissues. The pia mater is intimately associated with the spaces which furnish the spinal fluid; therefore it is quite readily conceded that in syphilis bodies are thrown out in the spinal fluid which will give us our findings and that there will be consequent leukocytosis and other evidences of the disease.

Dr. Frank P. Norbury, Springfield, Ill.: I would like to report a case. A woman, married, had been using the lead acetate solution with the result of lead poisoning and development of symptoms of syphilopsychosis type. The laboratory findings were those of a positive Wassermann. I supposed we had to deal with syphilis in connection with lead poisoning, but the clinical history of lead poisoning was definite so far as the findings were concerned. Recovery was effected under antilead treatment. So far as other findings are concerned, I do not know anything about that, as the patient has disappeared from observation.

In regard to what Dr. Ball has said as to the diagnostic value of the Wassermann, my associate and I have taken the Wassermann in all cases, and in several cases, especially in women whose social status was undoubted, we have noted what might be called a neurasthenic condition, and yet it is not a definite neurasthenic condition either; it is more of a restless irritability, with inability to get along at home in respect to the social environment and disturbed in many ways. In several of those cases we have found the positive Wassermann, leading us to believe that that may have and does have to do with the condition present. Under appropriate treatment these patients improve and many have returned home. I do not know what the findings will be later. One case under observation has developed paresis, so this was the preparetic irritation which we saw.

Dr. Francis X. Dercum, Philadelphia: I am very glad to see the emphasis laid on the clinical findings. When the Wassermann reaction was first brought before the profession there was a stampede to the laboratory, but we are now coming back to a deeper consideration of the clinical symptoms. I want to call attention to a point connected with tension, and that is the great value of spinal drainage. I do not think this point is fully appreciated. It is not sufficient to withdraw five or six cubic centimeters; you must withdraw sixty or seventy cubic centimeters. In carrying out this procedure we have not had a single mishap, and we have made many spinal drainages. It seems to me the benefit that accrues may be explained as follows: In the first place, in tabes and paresis both the spinal fluid and the cord are under great pressure, and under these circumstances the amount of fluid entering the cord must be diminished. If the pressure is reduced the cord must become hyperemic, and perhaps some of the astounding results we sometimes get in tabes from repeated drainage, every ten days or two weeks, even in the absence of other treatment, is explained by this. Drainage, absolute and complete, is a point of great value.

Dr. G. A. Moleen, Denver: I am not willing to take the Wassermann reaction from the sphere of contributory evidence. I think it is going to remain there for some time to come, and we must be guided chiefly by the clinical symptoms. I also want to bear testimony to the extreme value of drainage of the spinal cord. However, I must say that even though I had discussed the matter with Dr. Dercum, I felt some hesitation and fear, which I think we would all feel, on the first thought of draining every bit of fluid from the spinal canal. After Dr. Dercum had placed the matter on record I drained in quite a number of cases, and when I drained completely, every one of them would drop a cell count anywhere from 150 to 300 cells, after eight, ten or fifteen drainages, to something under ten. The principal point I wished to make, however, is with reference to the general evidences of infection of the nervous system and the treatment to be applied in accordance with that view. I do not think we are willing to take the position that every case of specific infection should be intraspinally treated because of fear of infection of the nervous system. We know that most of the cases of syphilis do not become neurosyphilitic. I do think the infection of the nervous system itself is nearly always indicated by the laboratory findings in the spinal fluid, and I think we have a great many cases which show positive blood reactions and no evidence in the spinal fluid. I do not think we are ready to accept the views that have been expressed, especially by McIntosh, that the nervous system is sensitized in the secondary stage of syphilis and that we have the so-called psychic symptoms of an anaphylactic reaction. In other words, I am opposed to the view that the general infection of syphilis is necessarily an infection of the nervous system, although I am quite willing to accept the view that no syphilis, no paresis and no tabes.

Dr. Otto G. Freyermuth, San Francisco: Dr. Ball brought out the very important fact that one could have a latent syphilis without any laboratory findings, and he showed how he continued treatment with very marked continuous absence of laboratory findings. I would like to ask Dr. Ball if, after he had instituted the antisyphilitic treatment in the case he referred to, he took the laboratory findings then to determine whether or not there was any evidence of positive syphilis. I do not feel that we are justified in excluding our laboratory findings entirely, yet we should not place too much stress on them. But, if in the laboratory tests of the spinal fluid we should find a + + + positive Wassermann, a high cell count, a positive globulin and a positive colloidal gold, I think there can be no question of syphilis in that particular case. But in the presence of a positive Wassermann alone, and only one or two plus, I would certainly hesitate before giving a positive diagnosis of syphilis. The statement has been made that under the antisyphilitic treatment and the Swift-Ellis drainage, certain mental manifestations had cleared, but that later on the tabetic manifestations were intensified. My experience in that respect is that the mental condition cleared up due to the releasing of the spinal fluid pressure, and, perhaps, the Swift-Ellis treatment had nothing whatever to do therapeutically with the mental conditions. My experience has been that drainage is a great necessity. The work done by Dr. Mehrtens of the Stanford Clinic would show how we can improve a great deal on the drainage by the modified Swift-Ellis treatment.

Dr. Tom B. Throckmorton, Des Moines: The statement made by Dr. Dercum concerning the use of drainage of the lumbar sac in these cases is of sufficient importance to attest to the value of this method as an adjuvant in treatment. About three years ago Dr. Dercum told me about this work, and since then I have used this method quite extensively in cases in which I could have patients confined either at home or in hospital service. In the vast majority of instances in which there were prodromes of threatened crises in tabes, I have prevented or entirely alleviated those symptoms which are so annoying in cases of tabes with spinal root irritation, by using the drainage method.

Dr. Walter F. Schaller, San Francisco: The work of Dr. Henry G. Mehrtens in the Stanford Clinic is based on the attempt to increase the permeability of the meninges or the choroid plexus to the passage of drugs administered intravenously. In order to accomplish this, an intraspinal injection of the patient's blood serum or horse serum is made, and after a sufficient interval of time for the meningeal reaction to take place the drug is given by the ordinary intravenous route. By this method sodium iodid is found to pass into the cerebrospinal fluid. We are now using arsphenamin by the method which is in effect a reversal of the usual procedure by the Swift-Ellis treatment.

Dr. Joseph Byrne, New York: It seems to me that we have struck the little snag that is so common in the diagnostics of medicine when we lose sight of the logical evaluation of things. Some people are keener in perception and logical evaluation of evidence than others. And it impresses me as very strange how much importance we attach sometimes to a negative finding. A negative finding must always be taken as just a negative finding. If we want to attach any importance to it we must follow the corroborative method as in all reasoning by induction. We must not attach too much importance to negative conclusions based on one or two examinations. We may have a positive spinal fluid with no clinical signs; then, again, we may have a negative spinal fluid with positive clinical signs. We must always take what is primary and fundamental as far as diagnostics go, namely, the positive thing. Give that its valuation and then search for corroboration. Negative laboratory findings can never nullify positive clinical evidence Then, again, we have the problems that are raised by Dr. Timme's case. I do not believe, however, that Dr. Timme has been able to exclude syphilis. Dr. Dercum spoke of positive clinical findings. We have of late been too prone to overlook the value of accurate, well-recorded clinical studies. Certainly the men of fifty or sixty years ago were infinitely our superiors in the study and evaluation of clinical evidence. It is to be hoped that we will finally come back to the true evaluation of positive and negative findings, whether these come from the laboratory or from clinical observation.

Dr. Joseph M. Aikin, Omaha: The clinical findings are growing in importance. The laboratory findings are of great value as contributory evidence in diagnosis. But I believe that many men in general practice have given them a place of paramount importance. A case by way of illustration: A lady under 30 sent one of the surgeons in our city a telegram to be ready to operate on her at a certain hour in the forenoon in one of the hospitals. The surgeon met the patient, refused to operate, and asked me to see the case. It was a frank case, clinically speaking, of syphilis. It was said to be a case of gallstone trouble. Under antisyphilitic treatment we had splendid results. Examination of the blood and spinal fluid was made by a very good laboratory man, and he said that it was not a case of syphilis. I presented the case to my students and they voted unanimously that the case was one of syphilis irrespective of what the laboratory findings showed.

Dr. Albert E. Sterne, Indianapolis: Relative to Dr. Timme's case, while it is true that the laboratory findings in cases of encephalopathy of the lead type simulate those of syphilis, there is one distinctive feature and that is the basophilia which occurs in lead cases and not in syphilis, and that should bar out syphilis in these cases. I cannot answer Dr. Southard's question without seeing the man. I was glad to hear the emphasis accorded to what I tried to bring out. Papers read here are published in a general medical journal; we are not now just talking among ourselves, but what we say goes out to the profession as a whole. And there is no questioning the assertion that the general profession does not fully realize the fact that the laboratory is being used as a short cut, not alone in the diagnosis and treatment of syphilis, but in many other diseases, pulmonary tuberculosis, for instance. It is a question for the clinician to decide whether he has a case of tuberculosis to deal with, not because there are tubercle bacilli in the sputum, but because the physical signs definitely point to such an affection. In respect to the Wassermann test, I call attention to this fact: Since this paper was written a reply has been made by Fordyce and his co-workers to Symonds' suggestions as to the value of the Wassermann reaction. Fordyce emphasizes the positive value of the Wassermann reaction, and his paper is extremely valuable. Symonds' article would seem to indicate that the Wassermann test is valueless. Warthin, again, absolutely stands on the proposition that there is no valid test for syphilis. He simply asserts that he arrives at this conclusion, because spirochetes can be demonstrated after death in individuals giving negative laboratory tests during life. And this is true, but the presence of the spirochetes after death simply indicates that during the life of the individual he had acquired syphilis, and that is all. Spirochetes may remain dormant and fixed in the tissues for years and give no laboratory reaction, such as we know. I do not think a wise clinician would wholly rely on laboratory findings, neither would he take the point of view that there is no value to these tests. There is a swing of the pendulum in the opposite direction now. Many men have come to the view that there may be nothing in the Wassermann, and I think that is wrong. The Wassermann is without doubt an extremely valuable reaction and we should hold to it, but the Wassermann, as generally made, may be valueless. In the first place, a lot of people who cannot make them think they can make Wassermanns, and, in the second place, there is no standardization of technic for a Wassermann reaction, either of the blood or spinal fluid. We should have standardized methods, and until we have these, a statement of the method employed should accompany the laboratory report to guide the clinician as to its comparative value. As to sending serums to a large commercial laboratory, we must know what condition the serums are in when they reach the laboratory. The men in charge want the $5 or $10, as the case may be, therefore they are not going to write back that the serum arrived in such condition they could not use it. There is nothing of reliability to be attached to a test made under such circumstances. With reference to Dr. Moleen's point of view, I said very emphatically that I was not convinced that intraspinal treatment had the value which is ascribed to it by some. After many years of use, I feel that I can subscribe to the intensive intravenous treatment associated with spinal drainage. Intravenous injection is the method which has given me by far the best results. I am getting away from intraspinal injections, but doing more and more spinal drainage together with intravenous intensive medication.

VISCERAL SYMPTOMATOLOGY IN NERVOUS DISEASES

GRAVE DANGERS OF MISINTERPRETATION AND OF UNNECESSARY SURGICAL INTERVENTION *

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At the present day, owing to the development of the various specialties, a development which has gradually become more and more intensive, the proper values are not always assigned to the symptoms presented by a given case. A physician accustomed daily to observe his patients from a single point of view is naturally in danger of acquiring a narrowed horizon. This danger can only be avoided if he keep in touch in greater or less degree with the other departments of medicine, especially with the great field of neurology. The specialist naturally has his attention attracted to some one organ or group of organs; perhaps it is the stomach, the heart, the genito-urinary apparatus, or perhaps a special sense organ. It may be that the symptoms presented owe their origin exclusively to the local conditions, or it may be that the latter form but a part of a much larger symptom-group. To assign to a special symptom its proper value at once becomes a matter of great importance. On the correct solution of this problem depends not only the diagnosis, but the subsequent treatment and very frequently the question of a surgical interference. I may add that in the field here presented crass differences of opinion have from time to time obtained, and that it is today a territory in which a veritable struggle is taking place; at times between the internist and the neurologist, but much more frequently between the internist or neurologist on the one hand and the surgeon on the other. In no department of medicine does this become more apparent than in neurology. Here, both in functional and organic nervous diseases, the affections may express themselves by visceral symp-

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

toms or by symptoms that simulate visceral disease. That great liability to error arises here at once becomes evident; error at times shared by the internist but more frequently by the surgeon. This error has its origin in an indifference to the subject of nervous diseases, an indifference which leads to an inadequate and at times to a hopelessly perverted conception of the disease from which a given patient is suffering.

Perhaps this condition of affairs is not altogether the fault of the internist or of the surgeon. Neurologists have too frequently given themselves up to vague speculations and, at times, even to metaphysical explanations. Of late years, too, a theory has found its way into medical literature, according to which every phenomenon presented by patients suffering from nervous or mental affections is of psychogenic origin. Not only are nervous symptoms thus deprived of any material basis or connection, but the theory is further peculiar in that it ascribes the origin of the symptoms solely to the repression of the memory of sexual occurrences. All of the symptoms have to do solely with the sexual life of the patient, his sexual misdemeanors, vagaries, peccadillos and the like. That practical men, such as internists and surgeons, should have come to regard this theory with the contempt that it deserves and should have gone to the extreme of disregarding neurologic interpretations of symptoms altogether, is perhaps not surprising. It is an unfortunate situation, but one which even those neurologists who reject so-called psychanalysis are in part responsible for, since they have not sufficiently combatted the doctrines of the latter. It is a never ending duty to point out that these doctrines are intrinsically illogical, and that they ignore the simplest facts of physiology, of metabolism and of pathology; and further that they are as misleading and harmful as they are filthy and vile. The modern world is not quite sane, and that new sects should arise in medicine presenting this or that mystic cult, no matter how absurd, is only in keeping with the times.

Let us, however, make amends to the internist and the surgeon by meeting them on a common ground; that is, the common ground of rational and scientific medicine. To begin, it is an established fact that nervous diseases, both functional and organic, are very commonly attended by visceral symptoms; secondly, because of this fact there is frequently great danger of error in diagnosis and consequently of treatment. Sometimes it is a diagnosis of functional disease of the heart or of the stomach or perhaps of actual organic disease of this or that organ; for example, of the gallbladder or of the kidney. Not infrequently, especially when the symptoms are referred to the abdomen, they lead to grave, unnecessary and wholly gratuitous operations.

The subject of the visceral symptomatology of nervous diseases is a very extensive one, and, in the short time at our disposal, it is impossible to consider it adequately. Enough, however, can be said to indicate the general principles and in some instances the specific facts that must guide us if error is to be avoided.

FUNCTIONAL NERVOUS DISEASES

Let us turn our attention first to the functional nervous affections. The neuroses, as I have elsewhere pointed out, separate themselves rationally into, first, neurasthenia, the neurosis of chronic or persistent fatigue; second, psychasthenia, an affection made up of a preexisting neuropathy plus nervous exhaustion; third, hysteria, the disease of suggestion; and last, hypochondria, an affection in which, while neither organic nor functional disturbances have real existence, the patient notwithstanding suffers from a fixed conviction of illness.

Let us begin with the subject of neurasthenia. Here at once we open up a disputed territory. Physicians are not wanting who deny to neurasthenia a separate clinical entity, who maintain that in so-called neurasthenia there is always some—often obscure and often undiscovered—organic disease, and that to say that a patient suffers from neurasthenia is equivalent to an imperfect or incomplete diagnosis. This view has its origin first in the neglect so common among physicians and even among neurologists to make a serious study of neurasthenia, deeming the subject both uninteresting and unimportant; and, secondly, because of the failure to make the distinction between neurosis, neurasthenia, and the general weakness which is sooner or later the accompaniment of visceral disease. This weakness differs radically in its symptomatology from that of neurasthenia, as I myself long ago pointed out; and in speaking of it I have used the general term neurasthenia symptomatica.

Confusion is still further added to the subject by the failure of certain neurologists—more especially those of the freudian school—to differentiate between the various neuroses, neurasthenia, hysteria and psychasthenia. If all nervous phenomena are due to repressed sexual complexes, it follows logically that a differentiation of the neuroses is both impossible and unnecessary.

I have endeavored in my own writings to give clearness to this subject by defining neurasthenia as the fatigue neurosis. If we limit the application of the term neurasthenia to the symptoms arising in persistent or chronic fatigue, the clinical picture at once assumes definiteness and clearness. The cardinal symptom is that of a ready exhaustion. There is a failure of the sustained expenditure of energy. This becomes evident whether the expenditure of energy is muscular or mental. In the demands of modern civilization, an undue expenditure of energy resulting in over-fatigue is of frequent occurrence. Under such circumstances, if the overexpenditure of energy be long continued, a condition results in which the normal amount of rest and food no longer suffices to restore the organism to the normal equilibrium. Gradually a well defined symptom-group becomes established. Thus, in addition to the fact that the patient becomes readily exhausted, we note an undue irritability, an exaggerated response to stimuli from without. In other words, along with the lessened power of the sustained expenditure of energy, there is also a lessened inhibition.

The symptoms of neurasthenia consist of motor, sensory, psychic and somatic phenomena. Time will not permit us to consider the motor phenomena other than to point out that the exhaustion is evidenced by ready fatigue; the irritability, by increased reflexes and associated changes. The sensory symptoms consist largely of fatigue sensations, aches and pains; ready exhaustion and irritability are revealed typically by special sense organs such as the eye. The psychic phenomena again reveal the symptoms of ready exhaustion, an incapacity for sustained mental effort, a diminution in the concentration of attention and a lessening in the spontaneity of thought; and of these phenomena, emotional irritability, diminished self-control and a lessened inhibition are the natural accompaniments.

However, in the present discussion, it is the somatic phenomena of neurasthenia that mainly concern us. Here we meet with symptoms everywhere indicating a deficient innervation and a deficient inhibition. Let us turn our attention first to the circulatory apparatus. Here we meet with lividity and coldness of the extremities, lessening of the force and modifications of the rhythm of the heart and changes in the character and frequency of the pulse. Deficiency of innervation is shown by the general reduction of vascular tone; diminished inhibition, by the increased pulse rate and by attacks of tachycardia brought on by exertion or by other disturbing causes. Pallor, flushings and other vasomotor disturbances are also noted. Not infrequently attacks of tachycardia are associated with disturbances of digestion, though not dependent on the latter; in such case, they commonly occur when digestion has been delayed or arrested and when marked gaseous distention of the stomach has taken place.

Occasionally the attacks of tachycardia are very severe, are accompanied by pain and may resemble attacks of angina pectoris. Such an attack may be preceded by a sense of distress about the heart, of fulness and oppression, which may become so severe as to spread over the left half of the chest or body, and may even be accompanied by sensations of choking and difficulty in swallowing. Suddenly the patient feels an intense griping in the precordial region. This pain may, as in true angina, radiate to the axilla and down the arm. Nausea and great fright are also present. The face is pale, the pulse rapid, small and feeble. In a few minutes, three to six, the face becomes flushed, the pulse gains in force, though it is still very rapid—from 130 to 140—and it may be slightly intermittent. Soon the pulse rate falls; the oppression diminishes; the manifestations of fright, though still present, grow less.

When we turn our attention to the digestive tract, the first symptom that we meet with is again that of weakness. The patient having taken food feels at first no distress, but after the lapse of an interval of time, sensations of weight, of oppression, of distention and of general discomfort about the epigastrium make their appearance. Usually eructations of gas occur, and it is noted that this gas is tasteless. These symptoms are those of a delayed, a somewhat enfeebled digestion, and they are usually accompanied in a degree by constipation. They are those of a mild atonic indigestion, of a somewhat diminished gastro-intestinal innervation.

Not infrequently the symptoms are more pronounced. In addition to the mere sense of weight and oppression, pain may make its appearance. This pain is referred to the epigastrium and at times to the back between the shoulder blades. If we examine the epigastrium, we find that it is somewhat sensitive to pressure; it is not, however, acutely painful as in inflammation, ulcer or other organic trouble. Distention is also noted, but this never suggests a dilatation. If a gastric analysis be now made, no changes of moment may be noted. More frequently, however, there is a diminution—which may be very marked—in the amount of hydrochloric acid. Digestion is much delayed and often the stomach is not emptied before it is time to take the next meal. Nausea is infrequent, vomiting quite rare. It is still an atonic indigestion. Quite usually the defective innervation involves the intestine; abdominal distention, meteorism and constipation are naturally present.

A little later the digestive disturbances may become still more pronounced. Sensations of distress, weight and tenderness may increase; fermentation with the formation of butyric, lactic and perhaps other acids may make its appearance; acid eructations, a coated tongue and other evidences of a gastric catarrh characterize the picture. The associated intestinal phenomena of constipation, meteorism, abdominal distress or pains are also pronounced.

When we turn our attention to the various secretory disturbances, the picture is again that of a deficient innervation; as witness, the dampness of the hands and feet and the ready sweating on exertion. The sexual disturbances, too, are those of weakness and irritability, and important as they are cannot detain us here.

The point of importance for us to bear in mind from the foregoing considerations is not to give to the local symptoms a value which they do not possess, nor to forget the general condition with which they are associated. The diagnosis of an angina pectoris when the symptoms are merely those of a severe neurasthenic cardiac attack, a pseudo-angina, is most unfortunate. Similarly is it with a diagnosis of functional or organic disease of the stomach when the symptoms of the latter are but part and parcel of the larger symptom-group of neurasthenia.

A still more interesting and important picture presents itself when we turn our attention to hysteria. I need not dwell on the origin of the name hysteria; that it is derived from the Greek word for uterus, hystera, that the early Greeks believed that the symptoms were due to the uterus wandering about the body seeking sexual satisfaction, and that the belief in the sexual origin of hysteria in some form or other has persisted to our own day; as witness, the theory of the repressed memories of sexual traumas in childhood advocated by the freudian sect. I need not trace the evolution of our knowledge of hysteria through the writings of Lepois, Sydenham, Briquet and Charcot. We are all familiar with the elaborate clinical descriptions and the elaborate chartings of the symptoms, the result of the labors of Charcot, of Paul Richer and of Gilles de la Tourette. For a time it was believed that the symptomatology of hysteria had been definitely established. Much, however, remained to be discovered. Charcot had recognized the similarity of the symptoms observed in hysteria to the symptoms observed in hypnosis, but it remained for Moebius to point out definitely that all of the symptoms were of mental origin. The next step was the recognition of the fact that the symptoms owe their origin to suggestion; this had been long suspected and was finally and definitely demonstrated by Babinski. The latter showed, for instance, that hemianesthesia is never present, provided that the examination is so conducted as to avoid all possibility of suggestion, and provided also that the patient has not already been previously examined. What is true of anesthesia is equally true of the other symptoms. They are all the result of suggestion in some form or other.

A most important fact, and one that has a bearing on the essential neuropathy of hysteria, must here be pointed out. If a normal person be tested for anesthesia and the physician while making the test actively employ suggestion, both direct and indirect, he fails to develop the symptom. In this fact lies the cardinal truth as to the nature of hysteria. Hysteria is a neuropathy characterized by a pathologic susceptibility to suggestion. The person suffers from a feebleness of resistance to suggestion and to impressions generally. These suggestions usually arise from without; they may, however, have their origin in impressions received from his own organism. It follows almost as a corollary that the neuropathy of hysteria is innate, is part and parcel of the make-up of the individual at his birth. Charcot and his pupils looked on hysteria as always inherited. All other causes are merely incidental to the development of the surface symptoms.

The incident which has acted as a suggestion for the development of a given symptom is sometimes quite apparent. Notably is this the case in the hysteria, following accidents. Quite frequently again, on the other hand, the incident is obscure or difficult to trace. This is not infrequently the case in the symptoms referred to the viscera. It must, however, be unhesitatingly conceded that the visceral symptoms equally have their origin in suggestion, no matter how arising.

Among the visceral symptoms of hysteria are disturbances of the digestive tract, of the cardiovascular apparatus, of the respiratory tract and other symptoms which may more or less closely simulate organic disease. Among the disturbances of the digestive tract, we note especially loss of appetite, rejection and disgust of food and vomiting. It is noteworthy that in spite of the apparent seriousness of the symptoms, the patient reveals little change or impairment of her nutrition. It is only when fraudulent or secret access to food is made impossible that loss of weight and even emaciation may be noted. Pain may be complained of and the vomited matter may contain blood, and the picture of an actual lesion, for example, a gastric ulcer may be simulated. We should bear in mind that the mucous membrane of the stomach may bleed just as may the mucous membrane of the nose, that is, without gross lesion, the bleeding being in all probability from the capillaries. That such bleeding should occasionally result from the retching to which the patients subject themselves is not surprising. Very frequently the bleeding is traced to the gums and has been voluntarily induced by the patient. Among the circulatory disturbances of hysteria are disturbances of the rhythm of the heart, local flushing, pallor or other vasomotor phenomena. Among the respiratory phenomena are sneezing, cough, curious and apparently automatic cries and sounds, aphonia and other often associated symptoms, such as mutism and spurious aphasia. Among the disturbances of secretion are polyuria and spurious anuria. Added to these are various abnormalities of the genital functions. Though the latter are significant, time forbids their consideration.

Far more important are the various local pains of hysteria which time and again more or less closely simulate organic disease. I refer to the so-called painful stigmata. They are, as is well known, among the most frequent of all the phenomena of hysteria. In spite of the fact that their nature and significance has long been recognized, they still lead with great frequency to surgical interference. So much so is this the fact that I can truthfully say that I rarely have a case of hysteria admitted to my wards in which on exposing the abdomen, I do not find the latter revealing the scars of one and often of many and repeated operations. Hysterical painful areas are very commonly found above the groins, over the iliac fossa and over various portions of the abdomen. It is a constantly recurring experience in my service to find the scars of operations for appendicitis, for all kinds of pelvic conditions, the scars of drainage of the gallbladder, of operations for visceral ptosis, and especially of operations purely exploratory in their character. Repeatedly it has been my experience to receive patients on whom a first operation for appendicitis had been performed with perhaps removal of the right ovary, then a second operation for removal of the left ovary, then a hysterectomy and finally other procedures such as removal of the coccyx; or, it may be, nephropexy or perhaps some operation on the gallbladder.

The pains of hysteria are distinguished from the pains of visceral disease by the fact that they are purely superficial; as a rule, the painful area can be included in the fold of skin taken between the thumb and forefinger of the examiner; and they commonly disappear under deep pressure, especially when this is made gradually. Besides, in a given case, the tender area is not confined to one spot, for example, over an ovary, but is also found over other portions of the abdomen and trunk, over the spine, over the scapulae, over the coccyx and elsewhere. In addition other crass evidences of hysteria are usually present, referable it may be to the special sense organs or other structures, or more particularly revealed by the mental condition of the patient. It is, indeed, the latter that is responsible for the special symptoms presented. Hysterical patients like to occupy the center of the stage; they like to be objects of interest and sympathy, and this fact coupled with their vulnerability to suggestion, a vulnerability which expresses itself at times in a veritable desire to present the symptoms sought for, may lead both physician and surgeon astray.

Obviously the investigation of a given case should be such as at first and definitely to exclude hysteria. If hysteria be suspected, it becomes evident at once that the investigation of the symptoms must be made with special care, suggestion being absolutely avoided, or in a doubtful case the examination being made with the negative suggestion. If organic disease be really present, as, for example, in the case of a true appendicitis, the negative suggestion will not dispel the symptoms.

When we turn our attention to psychasthenia — a neurosis which is made up of two factors, namely, a preexisting neuropathy plus a superimposed nervous exhaustion — the picture presented may be very complicated. On the whole, however, symptoms referable to the viscera of such severity as to dominate the clinical picture are distinctly the exception. When present, they are of the same general character as those observed in neurasthenia and need not especially detain us. If we turn our attention to hypochondria — the neurosis characterized by a fixed conviction of illness when such illness has no existence — the complaints of the patients may again lead to the erroneous diagnosis of visceral disease. Quite commonly, it is the stomach, liver, or intestinal tract on which the attention of the patient is centered; at other times, the genital apparatus or the pelvic organs, are the objects of the nosophobia. That such patients frequently become the willing subjects of an unnecessary and a misdirected treatment need hardly be pointed out.

ORGANIC NERVOUS DISEASES

When we turn our attention to organic nervous diseases, a still more remarkable picture unfolds itself. Here in recognized cases pain, vomiting and other symptoms referred to the viscera lead time and again to exploratory operations. It is a not infrequent experience in my clinic to meet with cases of paresis and of tabes in which such operations have been performed, the patients having merely suffered from visceral crises, the result of sensory root involvement. I have known a paretic patient to have been the subject of as many as four laparotomies. Time and again, I have known tabetics to have been subjected to similar procedures. In one notable instance, a kidney was exposed and explored — fruitlessly, of course. In another instance, that of an unrecognized brain tumor, vomiting led to an exploratory operation on the upper abdomen. In another instance of unrecognized brain tumor, the diagnosis of cyclic vomiting was made. Time and again, also, the pains of tumor of the cord have led to mistaken diagnoses and not infrequently to unnecessary abdominal operations. To this fact Elsberg has also called attention. Time will not permit of an extended discussion of this subject. The general truth, however, becomes evident that every case, especially of obscure pain or obscure visceral symptomatology, should be submitted to a careful neurologic examination. It is certainly unpardonable to open up an abdomen or to explore a kidney when a neurologic examination would have revealed the existence of a tabes. It is equally regrettable when unnecessary and positively harmful operations are performed in the functional neuroses. As regards the latter, we should bear in mind that in the neuropathies as a group there is a generally lessened cerebral domination or inhibition, a relative degree of psychic adynamia, as I have elsewhere expressed it. As a consequence, the lower centers, the lower neural mechanisms, react unduly, and, as a consequence, neural visceral reactions become unduly prominent. Normal responses are grossly exaggerated, or anomalies, irregularities or vagaries are presented.

The detailed explanation of the symptoms is to be sought for in the intimate relations existing between the cerebrospinal, the autonomic and the sympathetic nervous systems. A discussion of this aspect of the subject, no matter how interesting, would transgress too far the limits of this paper. Let it suffice to recall the duplex innervation of the heart; first, the autonomic innervation through the vagus and, second, the sympathetic innervation through the accelerator nerves; the first representing a higher mechanism of domination and control; the second, a lower mechanism which manifests increased or unrestrained activity when the higher mechanism is weakened. In the case of the gastro-intestinal tract, we have, again, on the one hand, the vagus, and on the other, the splanchnic nerves, and between these a similar interaction takes place. When we reflect that duplex innervations exist for the glands of the mucous membranes of the trachea and bronchi, for the muscles of the trachea and bronchi, for the glands and muscles of the intestinal tract from the esophagus to the anus, for the urinary bladder, for the genital organs and for other viscera, and for the blood vessels of all these structures as well, we can readily understand that in the derangements of action which result from overfatigue or which result from the lessened cerebral domination present in the neuroses as a whole, very many symptoms make their appearance; symptoms which, as I have endeavored to show, may be grossly misleading, if not properly interpreted. The first step, I should say in conclusion, is always the prompt recognition of the underlying neurosis or of the underlying organic nervous disease as the case may be.

ABSTRACT OF DISCUSSION

Dr. Theodore Diller, Pittsburgh: Twenty years ago I made many diagnoses of neurasthenia. Proportionate to the number of cases seen, I now make not more than half, possibly only one third as many such diagnoses. The cases which I would have termed neurasthenia twenty to twenty-five years ago are now very largely termed psychasthenia. Even in the older days we heard much about the mental symptoms of neurasthenia. Another diagnosis which I made twenty-five years ago and do not make now is myasthenia. I see many people who lack the vital spark, they are generally weak. I see people that I classified as having a fixed idea and whom probably we now classify under the hysteric group. And these are, I believe, the particular ones Dr. Dercum has in mind—persons who have their idea on a certain pain, a certain part of the body to which their mind reverts and on which their attention is fixed. I recall a man who had undergone seven or eight operations—an exploratory operation first for one kidney and then for the other; an operation for appendicitis on the right side and then one on the left side in the belief that the appendix was misplaced; an operation for gallstones, etc. The man was 28 or 29 years old, and after going over him carefully I felt sure that the trouble was merely a fixed idea; that the thing was entirely psychic. I proposed observation and rest treatment, which the patient refused. He was bent on having another operation.

Dr. Walter Timme, New York: Fortunately, in New York, surgeons are recognizing the neurologic aspects of these vague abdominal pains, and refer such patients to neurologists. A few years ago one of the assistant attending surgeons at a hospital in New York City became at the same time a consulting physician of a neurologic institute where he was to examine cases and differentiate the neurologic symptoms before operation. Since that time many cases have been referred for neurologic examination before operation, with good result. The first case of that type sent to us was a girl, 20 to 22 years of age, who had been complaining of abdominal pain and weakness, and who for months had been vomiting after each meal. They removed the appendix, but the vomiting and the pain continued. Then, because the pain was greatly enhanced at the time of menstruation, they took out both ovaries, but the pain continued. They performed a third operation for adhesions that had formed following the former operation, but she still vomited and had pain; they removed the uterus, and operated for gallstones, but the vomiting continued and the weakness persisted. Then the doctor wrote a letter saying: "This young girl has had all removable organs in the abdomen removed and has nothing left. Won't you kindly do something for her?" Vagotomy was done, and she improved. Within three weeks she was cured, and has never had a recurrence. That happened two years ago.

These cases of pain and abdominal distress are not cases of hysteria and neurasthenia. The pain exists. It is not an imaginary condition. It is produced largely by the nonfunctioning of the smooth muscle fibers of the intestinal and stomach walls. The tension of those organs is increased or reduced by an irritable vagus, and when this is corrected the patient is cured.

Dr. William A. Jones, Minneapolis: I am in sympathy with Dr. Dercum's paper and agree with his view as to the somatic phenomena of psychasthenia. Some years ago Dr. W. J. Mayo referred a patient with dilated stomach to me. She was told that if she was not better in a month she could have her stomach repaired. She remained in the hospital about four weeks, and after seeing her vomit for ten days and unable to retain food, I gave her 10 grains of calomel. I do not know why, but it brought out what was there. She had an acute exacerbation of chronic nephritis. Her vomiting ceased, and she has not vomited in four years.

Dr. Joseph Byrne, New York: I was rather surprised that Dr. Dercum did not make any allusion to the psychologic factor, except the rôle of suggestion, as pointed out by Babinski. We have to see these things from the patient's viewpoint. I strongly object to the term "imaginative" as applied to disorders when the patient presents herself. Anything present to the patient's mind is very real. That is a sharp distinction that must be made. When a patient complains and suffers we must not tell her she has an imaginative disturbance. She will be insulted and go away and rate us accordingly. We have to take into consideration the psychic and somatic factors in every particular. The nervous system is made up of neurons and these neurons may be exhausted, this being the underlying condition which brings about somatic and psychic disturbances. This is the a-b-c of psychology. Pain and fear have sent patients to doctors since the days of Adam and there is nothing less understood by the physician than these two things—pain and fear. The patient comes to us complaining of pain and if keen in history taking we make our notes and getting him off his guard let him talk freely when we will find that what he suffers from is not the same thing that we mean by pain at all. Then we get our estimate of what is really the underlying condition. In essaying the value of pain as a symptom, we must get at the somatic as well as the psychic value, and we may state it in percentages, as 80 per cent. of psychic and 20 per cent. of somatic origin, and so on. But, if we are on our guard and try to reach what is fundamental in the case, then we are on the way to proper diagnosis and treatment. I can only corroborate the statement as to the futile operations and needless sufferings many of these patients are subjected to by surgeons. These patients should more frequently be referred to the neurologist.

Dr. C. R. Ball, St. Paul: I think surgeons have a wholesome fear of these vague, indefinite visceral pains, and for years my experience has been that surgeons and internists are much more apt to make diagnoses of hysteria and neurosis than are the neurologists and psychologists. It is in the organic conditions that the surgeons are still making mistakes. It is in such conditions as cord lesions, either from syphilis or other sources, that they are apt to think there may be a stone in the kidney, or stones in the gallbladder or common duct. It is surprising how often they operate for pain and never find out that they have made a mistake, because, I think, in many patients operated on for gallstones the surgeon will find gallstones, and, of course, when the surgeon finds gallstones, he removes them, puts them in a bottle and shows them to the patient afterward. In the last two years I have had a number of patients who have had lightning pains after having been operated on for gallstones and the stones found, and neither the surgeon nor the patient ever thought that the gastric crisis was causing the painful attacks. Some time ago a young nurse was referred to me by a surgeon. She had had four abdominal operations. The surgeon operated on the gallbladder and found stones; he had done a gastro-enterostomy; he had done some work on the ovaries and on the uterus, and still his patient was getting worse. It was a very intense case of psychasthenia, almost a border-line mentally. Her mind was concentrated on herself. Because of this morbid self-analysis, I found it very difficult to accomplish anything with her. I felt that the only thing to do was to give her a new impulse and bring about a different mental attitude. Therefore, I put her on a case, a rather difficult mental case, and under that environment this nurse braced up, finished her case successfully, took other cases, and since then has been fairly well, at least able to follow her profession.

Dr. Albert E. Sterne, Indianapolis: We have all had experiences like those of Dr. Dercum. What has impressed me most has been this: First, that the quality most lacking, not only in the medical profession but in our patients, as a rule, is just good plain common sense; second, that in the medical profession there are men (who by courtesy are called neurologists but should be classed as internists), who really take case histories, who really inquire of the patient the reasons and the various factors which bring the patient to the doctor. Not only once, but many times, I have had patients who have gone the rounds of physicians, who have gone from one surgeon to another and had this, that and the other operation done. And they say, "Doctor, I have never had an examination before." That is a common experience. What does the surgeon do, what does the general practitioner do, when he sees these patients first? They all see them before we do. We are the last resort. We have to undo largely what has been done before. They ask a few questions relative to the thing the patient complains of, they jot that down, place the patient on the table—"Yes, you have a fibroid; you have a cystic ovary; you have prolapse of the stomach, intestinal stasis"—and what not, but seldom conduct a far-reaching general examination. They rarely get at the fundamental attitude which the patient presents. The first thing of importance, it seems to me, is to get the subjective point of view of the patient. Let the patient talk himself or herself out at the first sitting; then make your examination and get your own objective point of view. With your objective conclusions superposed on the patient's subjective point of view, you acquire your own subjective analysis of that particular patient. Very rarely, if the physician is an able man, who takes careful case histories and makes thorough physical examinations, will he stray far from the actual condition that any individual presents.

Dr. Otto G. Freyermuth, San Francisco: In the analysis of a case we should take into consideration as a prime factor the psychoneuronic structure of that patient, and then we will have something definite on whch to work. I am heartly in sympathy with what Dr. Byrne says, that when a patient says he has pain, he has pain. There is no such thing as imaginative pain. There is a stimulation some place in the tract from the periphery to the cerebral cortex, and we must locate that irritation. As to hysteria, I must admit that when I make a diagnosis of hysteria I confess by that diagnosis that I do not know what is the matter with my patient.

Dr. B. Lemchen, Dunning, Ill.: I am especially pleased that Dr. Dercum recognizes "nerve fatigue." Certain investigators have been trying to make us believe that there is no such thing as "nerve fatigue." The mistake they have made all this time has been that they do not recognize the fact that they were trying to stimulate a nerve to which they have applied electricity, they added force. The nerve cells themselves must add this force by doing work, and when the nerve cells work they must become fatigued, as do any other cells. The nerve cells do become fatigued when overstimulated, and in reality pain is only the cry of the nerve for help, including rest. We can go even farther and say that hysteria is also due to nerve fatigue. It requires more force to work with peripheral stimulation than with psychic intrastimulation, because with peripheral stimulation the stimulus has to travel more neurons and, of course, requires more work.

Dr. Francis X. Dercum, Philadelphia: The terms hysteria and neurasthenia are used simply for the purpose of defining these groups. We should recognize that we have visceral symptoms, pronounced or indefinite. These special localized symptoms may bear relation to the nervous symptom groups which we characterize as functional nervous disorders. I have seen duplicated beyond belief the mutilation of patients. In one case, after a series of fruitless operations, all the coccyx was removed and finally a portion of the sacrum was removed. Such a procedure is not only ludicrous, it is criminal in a sense; it is wicked beyond words. The importance of neurasthenia is not recognized, and there is no adjective that will fit these surgical mistakes. When the kidney is laid open and split, it is a more dangerous procedure than looking at the pupils and making the appropriate tests for tabes. Neurology today is playing the most important rôle in medicine. The neurologist is doing more in the war than the internist and the surgeon combined. The importance of neurology cannot be overestimated.

NASMYTH'S MEMBRANE, EPITHELIAL DÉBRIS, AND THE GRANULAR LAYER OF TOMES *

EUGENE S. TALBOT, M.D., D.D.S.
CHICAGO

For more than a hundred years scientists have speculated on the etiology and function of Nasmyth's membrane. Within the last twenty-five years, epithelial cells in the peridental membrane have caused considerable discussion in our modern textbooks, while the granular layer of Tomes has not received the attention that its pathologic conditions demand.

On account of the interest lately manifested in focal infections and the imperfect operations on devitalized teeth, I have spent a number of years doing research work on teeth of animals and human beings. The amount of material at my disposal has been unlimited. The Cook County morgue has furnished me with human material, while the kennels and laboratories at Rush Medical College have provided more than the required number of dogs. Instead, therefore, of basing my conclusions on one tube or one slide, hundreds of sections were cut and mounted for microscopic study.

While this work was going on, questions regarding histology frequently arose and required investigation. For this purpose human embryos and very young children were required. This material was more difficult to obtain. "Where there is a will there is a way," and so the machinery was put in motion and abundant material was obtained. The result of all this work will be published in book form. A part of this work, however, is so unique, important and original that I feel it should be given to the profession at the earliest opportunity. Hence, my reason for appearing before you at this time.

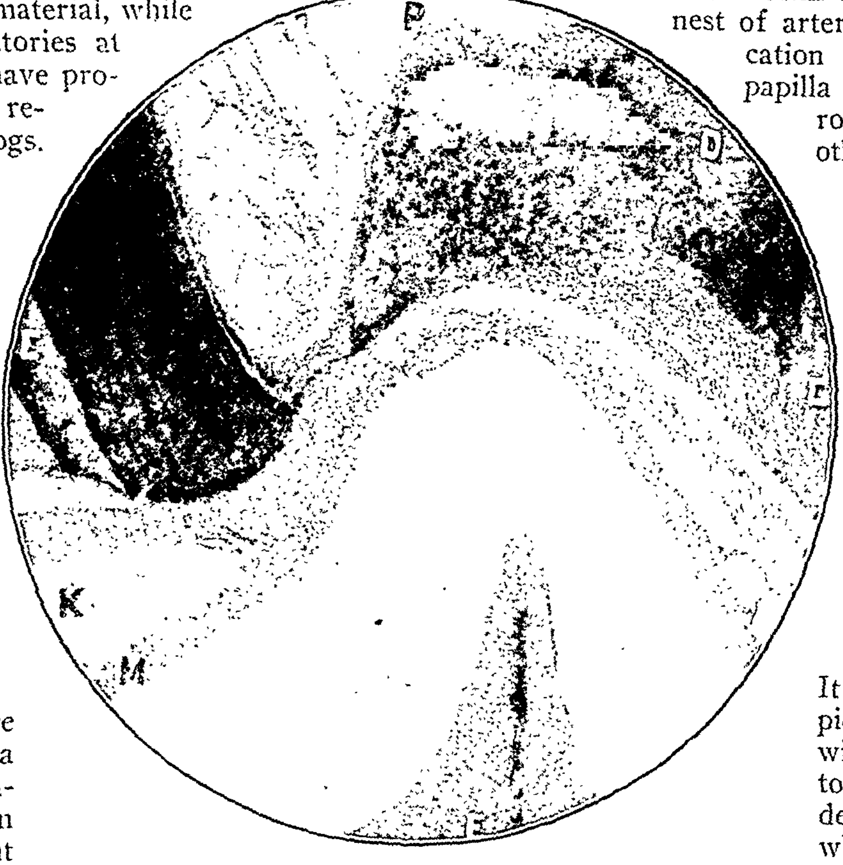

Fig. 3.—An area between the crown of a permanent tooth and the root of a temporary tooth of a dog: *C*, cementum; *D*, dentin; *E*, enamel of the permanent tooth; *K*, fibrous sac; *M*, external epithelium; × 40.

While Nasmyth's membrane, epithelial débris and the granular layer of Tomes have much to do with the pathology of the teeth and the alveolar process, our textbooks seem unable to cope with the etiology or pathology of the apical dental tissues. In my researches on these tissues in both animal and human subjects, I accidentally hit on the source of these pathologic conditions, and now present them through this society to the profession.

Figure 1 shows the development of the crown of a human cuspid tooth at birth. The different tissues are readily seen. The dental papilla has taken its place and the outline of the tooth to be formed. The enamel organ is forming itself about the papilla. It seems, however, to have pulled away from its normal position on both sides at the neck in the preparation of the material for the microscope. The two dark lines representing the inner and outer layer of epithelial cells are nicely outlined, and between these two layers may be seen the stellate reticulum. Note that the epithelial cord is being absorbed away regardless of the fact that the fibrous sac has not come in contact with it. It would seem, therefore, and this picture actually demonstrates, that it is not the fibrous tissue of the dental sac that causes absorption of the epithelial cord, *as we have always been taught to* believe.

At the base of the papilla where the fibrous sac will eventually develop may be seen a nidus of arteries which furnish blood for the nourishment of the dental tissue until it is fully formed. This nest of arteries always marks the location from which the dental papilla forms, including the root of the tooth. In other words, the nidus of arteries is always the base, no matter how long the tooth and the root may be.

Details are lost to a great extent in this picture for the purpose of obtaining a large area of structures to show their relationship one to the other. This picture, then, is the characteristic picture of the development of a tooth as shown in our various textbooks. It will be seen that this picture has simply to do with the crown of the tooth and not with the development of the root, which is so necessary in the study of diseases associated with it. It is, therefore, from this period to the full development of the root of the tooth that my researches and this paper have to deal.

Figure 2 is also of a low magnification for the purpose of showing all the tissues in relation to one another. It is claimed by most writers that the external epithelium of the enamel organ is atrophied before the time of the completion of the enamel. Thus Magitot[1] states that the external epithelium of the enamel organ is atrophied before the time of the completion of the enamel. Tomes is also of the same opinion. This picture splendidly demonstrates that this theory is not correct. The enamel is completed in its development. The external epithelial layer is beautifully shown extending from the neck of the tooth entirely around its outer surface. At the lower borders at the neck of the tooth the external epithelial layer of the enamel organ is situated quite a distance from the enamel, while across the entire crown it is in close contact. The entire tooth is pushing its way toward the surface as the root develops.

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* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Owing to lack of space this article has been abbreviated for publication in The Journal by the omission of some of the illustrations. The complete article appears in the author's reprints.

[1] Magitot: Dental Anatomy, Tomes, pp. 93.

To demonstrate further the correctness of this fact, I present Figure 3, showing the temporary premolar tooth of a dog about 1 year old in position and the permanent tooth erupting, causing absorption of the root of the temporary tooth. The crown of the permanent tooth, including the enamel, is completely formed and is pushing its way by absorption into place. The external epithelial layer of the permanent enamel organ is nicely shown next to, but some distance from, the point of the tooth. Outside the epithelial layer partly attached to, and partly removed from it, may be seen the fibrous sac of the permanent tooth in contact with the absorbed roots and alveolar process of the temporary tooth. The alveolar process, the cementum, the dentin and pulp of the temporary tooth are shown. Osteoclast absorption can also be readily seen. I have hundreds of sections from dogs and human beings to demonstrate that the external epithelial layer remains intact until the eruption of the tooth through the alveolar process.

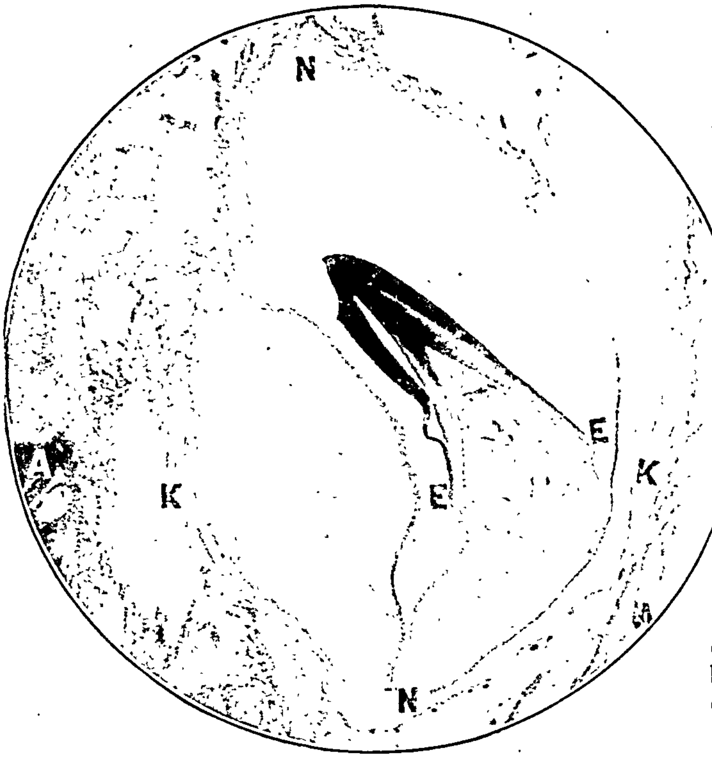

Fig. 7.—Completed root: *A*, alveolar process; *E*, end of enamel; *K*, wall of sac; *N*, external epithelial layer; × 16.

To show further that the external epithelial layer and the fibrous sac do not always absorb away until the eruption of the tooth, the following case in practice will demonstrate:

> A boy, aged 14 years, had erupted all the permanent teeth with the exception of the right inferior second bicuspid. All of the temporary second molars remained in the jaw longer than usual. They were extracted before they became loose in order that the bicuspids might erupt at their proper period. When the temporary right second inferior molar was removed, the bicuspid did not erupt, although there was plenty of room between the first bicuspid and the first permanent molar. A bright red membrane was present over the bicuspid crown after the temporary tooth had been removed. This condition remained for eighteen months. I finally excised this tissue, and the tooth developed into position. When this tissue was placed under the microscope the two layers, one the external epithelial, the other the firbous sac, were distinctly seen. Either there was insufficient energy exerted in the bicuspid tooth to absorb these two membranes, or the fibers of the sac were so dense and strong that the tooth could not push its way into position. All of us have observed similar conditions in our own practice.

As it has been shown conclusively that the external epithelium may and does outlive the development of the enamel until after the eruption of the tooth, we are now prepared to trace its erratic development through its future career. We have seen in former pictures that even after the enamel has begun to form, the external epithelium retains its connection at the neck of the tooth until it has completed its development. As soon as development of the enamel has become completed, the epithelial cells of the internal layer and the material composing the stellate reticulum have exhausted themselves. The external epithelial layer, therefore, has severed its connection with the internal layer at the neck of the tooth, and, the end of the external layer being free, it drops into space or attaches itself to the inner surface of the dental sac, the end of the external epithelial layer resting at the junction of the sac and the root of the tooth.

Figure 4 shows the development of an inferior central incisor at birth. While this specimen was being prepared for the microscope, the posterior part of the alveolar process was destroyed. Enough tissue remains, however, to show the development of the root of the tooth. The nidus of arteries at the base of the papilla is located quite a distance from the neck of the tooth, as compared with Figure 1, showing that the root of the tooth has developed nearly one-half its length. The edge of the enamel shows the location of the neck of the tooth. The external

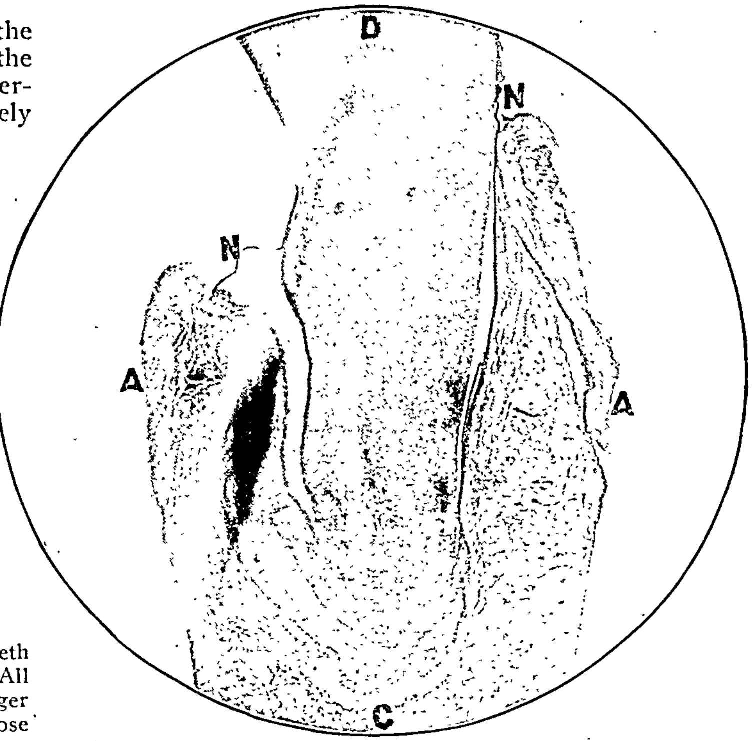

Fig. 10.—Root and alveolar process of a human cuspid tooth: *A*, alveolar process; *C*, cementum; *D*, dentin; *N*, Nasmyth's membrane; × 8.

epithelial layer originally extended to that locality before severing its connection with the internal layer. Note that the end of the external layer now rests at the base of the papilla at its junction with the dental sac. Not that the external epithelial layer has grown in length, which it is capable of doing, but in the development of the root of the tooth, the crown and the root have grown upward from the base where the arteries are located. At places along the external epithelial layer dead cells are given off where it does not receive nourishment from the fibrous sac. Quantities of dead cells have migrated from the external epithelium and are located on the enamel on both sides of the crown. Where the external epithelium has obtained its nourishment from the sac wall, the cells are in a comparatively normal healthy condition.

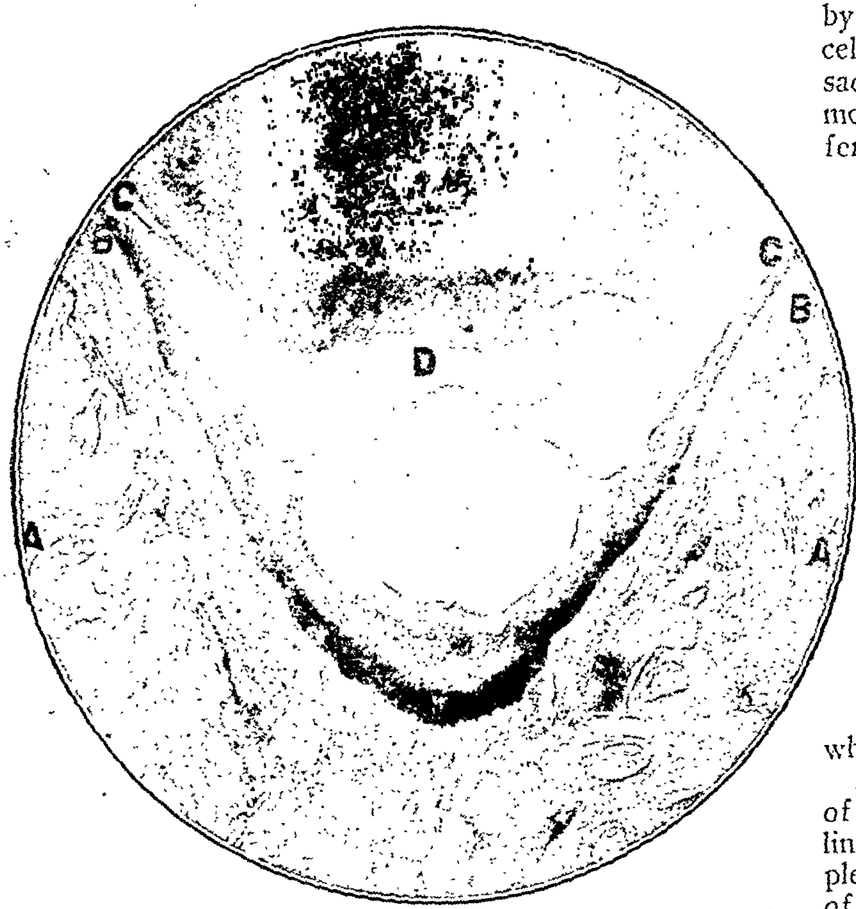

Fig. 11.—*End of root and alveolar process of a human bicuspid tooth: A, alveolar process; B, peridental membrane; C, cementum; D, dentin;* × 23.

Figure 5 shows another incisor crown with the enamel normally developed. The internal epithelial layer and the stellate reticulum have entirely disappeared, while the external epithelial layer is still located on the inner surface of the dental sac. The edge of the enamel both anteriorly and posteriorly is distinctly outlined. The external epithelium has dropped down to the junction of the papilla and the fibrous sac, which is also readily seen. The distance, however, between the end of the external epithelium and the edge of the enamel is quite marked. This is the root of the tooth. Here again details are sacrificed to obtain a large area to show the relation of the different tissues to each other. The nest of arteries, however, at the base is readily observed. Like the other pictures, these arteries were originally located at the base of the crown, as seen in Figure 1.

The root of the tooth developing from the base has carried the crown of the tooth toward the surface. Hence the difference in location of the ends of the external epithelium and the edge of the enamel. It is well to call attention at the present time to the dark spot in the fibrous sac outside the external epithelium. Note that bone has *not* yet developed at that locality. The part of the external epithelium that is nourished by the fibrous sac sends out healthy normal epithelial cells, which migrate in all directions in the fibrous sac. Sometimes they are single, sometimes two or more are together, and they form themselves into different shapes. Sometimes they are in rows and sometimes they form cylinders like a gland. These will be shown more clearly later on. Carry in your mind's eye the end of the external epithelium where it turns on itself at right angles at the right of the picture. This locality will be shown by a higher magnification later.

Figure 6 shows another human tooth developing at birth. The distance between the edge of the enamel and the nest of arteries at the base is readily outlined. The external epithelium at the right has been partially destroyed for want of nourishment, and the dead epithelial cells are scattered in the space. At the left the external epithelial layer extends down to the junction of the fibrous sac and the dental papilla. Here again, epithelial cells shown by the dark spot have migrated outside the external epithelium into the fibrous tissue. New bone is developing at the right which will eventually encroach on the soft tissues.

Figure 7 shows the entire development of the root of the tooth. The neck of the tooth can be easily outlined at the edge of the enamel. The enamel is completely formed, the dentin still developing. The ends of the external epithelial layer, originally located at the end of the enamel at the neck of the tooth, now are located, as shown in the other illustrations, at the junction of the papilla and the fibrous tissue of the sac. In this case in the laboratory treatment it has been torn away at the end of the root from the fibrous

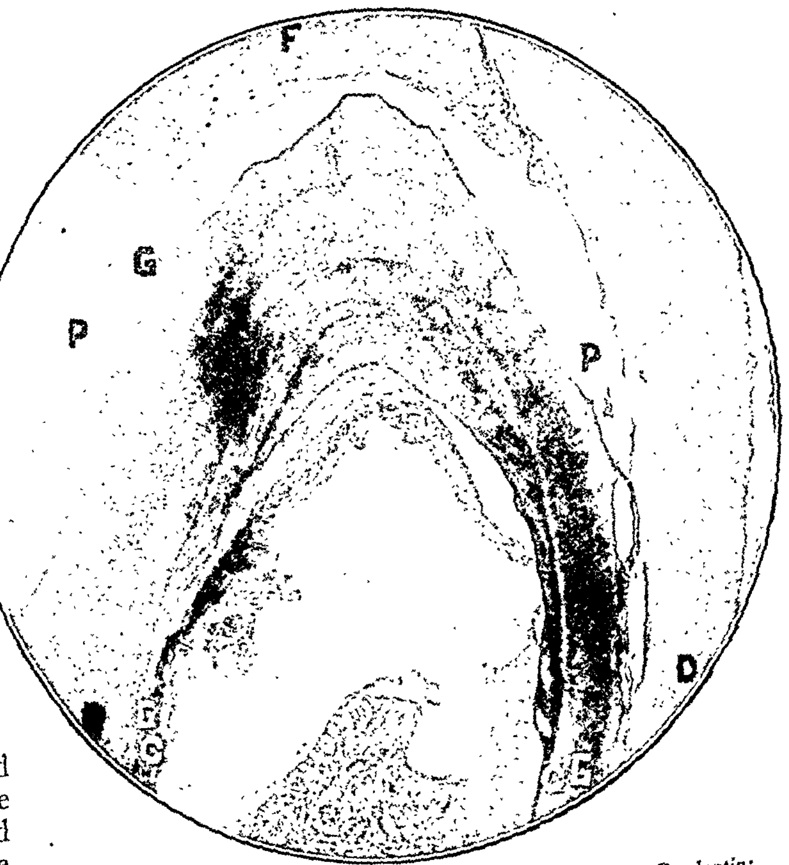

Fig. 12.—Human inferior second molar: *C*, cementum; *D*, dentin; *F*, filling material in pulp chamber; *G*, granular layer of Tomes; *P*, pulp canals; × 13.

sac; hence the reason for the two edges not coming together and completing the circle around the dentin. At the upper border outside the external epithelial layer, epithelial cells which I have called "epithelial débris"[2] may be seen migrating into the fibrous tissue.

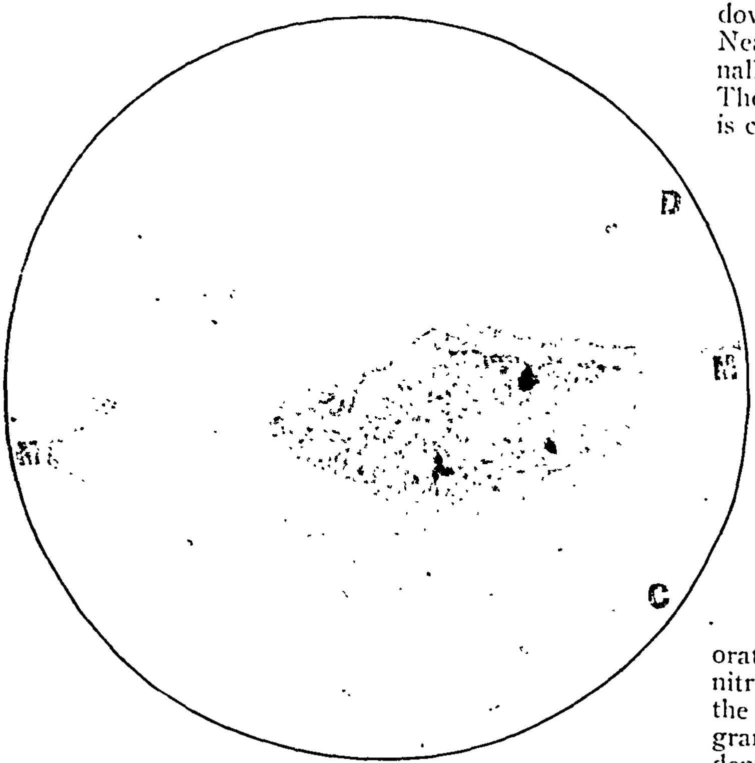

Fig. 14.—Still higher magnification of cavity containing a nest of epithelial cells: *C*, cementum; *B*, dentin; *M*, external epithelial layer in the granular layer of Tomes; × 275.

It will be noticed that the external epithelial layer is located between the dentin papilla and the dental sac, or follicle. As the dental sac adapts itself to the formed dentin, the external epithelial layer is molded to the outer surface of the dentin and the inner surface of the sac.

The sac wall eventually becomes the peridental membrane, which develops the cementum. Naturally, if the external epithelium extends below the neck of the tooth, cement substance is deposited on the epithelial layer and not on the dentin. As we have shown, sometimes the epithelial layer stops at the neck of the tooth, sometimes midway along the root, and frequently it extends entirely around the dentin. Sometimes the epithelial cells are destroyed for want of nourishment. Again, not infrequently the epithelial layer does not adapt itself smoothly to the dentin, and loops are formed; in this manner we obtain the granular layer of Tomes to a smaller or larger degree. The following illustrations show my contention in this regard.

Figure 8 shows the end of the root of a dog's tooth. Between the cementum and the dentin is seen the granular layer of Tomes. Spaces are noticed throughout the entire distance, some small and others quite large. These spaces contain protoplasm and the débris from the external epithelial layer.

Figure 9 is the entire root of a cuspid tooth with the alveolar process of a man, aged 37. This is a very low magnification in order to show all the structures in position. The details, therefore, in a measure are lost. In following the external epithelial layer from the gum margin at the right from the dentin across the space to the alveolar process, it can be traced down one-half the length of the root, at which point it becomes attached to the dentin and passes diagonally downward across the root and to the opposite side. Near this locality may be seen a small opening, originally an artery. This is the granular layer of Tomes. The large mass of material outside the granular layer is cementum.

Figure 10 is a similar reproduction of a very low magnification of a first bicuspid taken from the same mouth.. This picture shows the details much more clearly. The external epithelial layer can be traced from one side of the crown down the entire length of the dentin around the end of the root, up the opposite side, and back to the crown. The cement is located outside the epithelial layer and the granular layer of Tomes. We shall see later that this external epithelial layer becomes a part of Nasmyth's membrane.

To appreciate the position of this epithelial layer and its relation to the dentin and cementum, I present Figure 11. This is the root of a cuspid tooth of a man, aged 37. The dentin, the cementum, the peridental membrane and the alveolar process are all plainly shown in this illustration.

In the preparation of these specimens in the laboratory for the microscope, if we employ 5 per cent. nitric acid or 3 per cent. nitric acid for some time, the acid destroys the epithelial layer, including the granular layer of Tomes. In preparing sections the dentin is pulled entirely away from the cementum, which is held firmly to the alveolar process by the fibers of the peridental membrane.

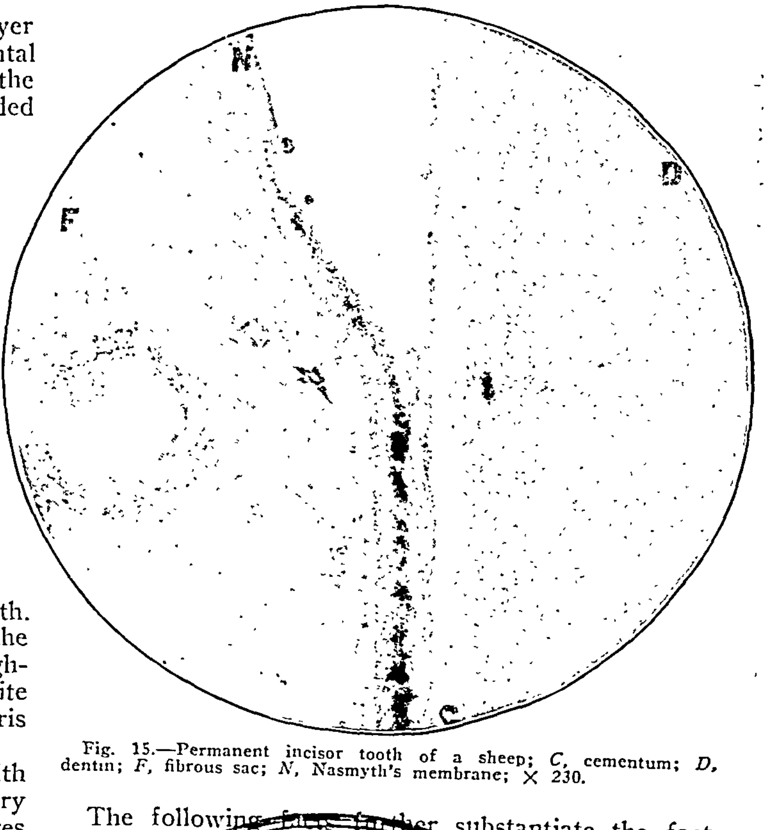

Fig. 15.—Permanent incisor tooth of a sheep; *C*, cementum; *D*, dentin; *F*, fibrous sac; *N*, Nasmyth's membrane; × 230.

The following facts further substantiate the fact that the external epithelial layer often extends partly or entirely around the dentin and inside the cementum. Epithelial cells that have lost their nuclei when granu-

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[2] Talbot, E. S.: Interstitial Gingivitis or So-Called Alveolaris. 1899.

lation has taken place in the body of the cell — apparently dead cells — stain bluish purple or purple. This purple line is frequently seen extending from the crown on one side of the tooth between the dentin and cementum and around to the crown on the other side.

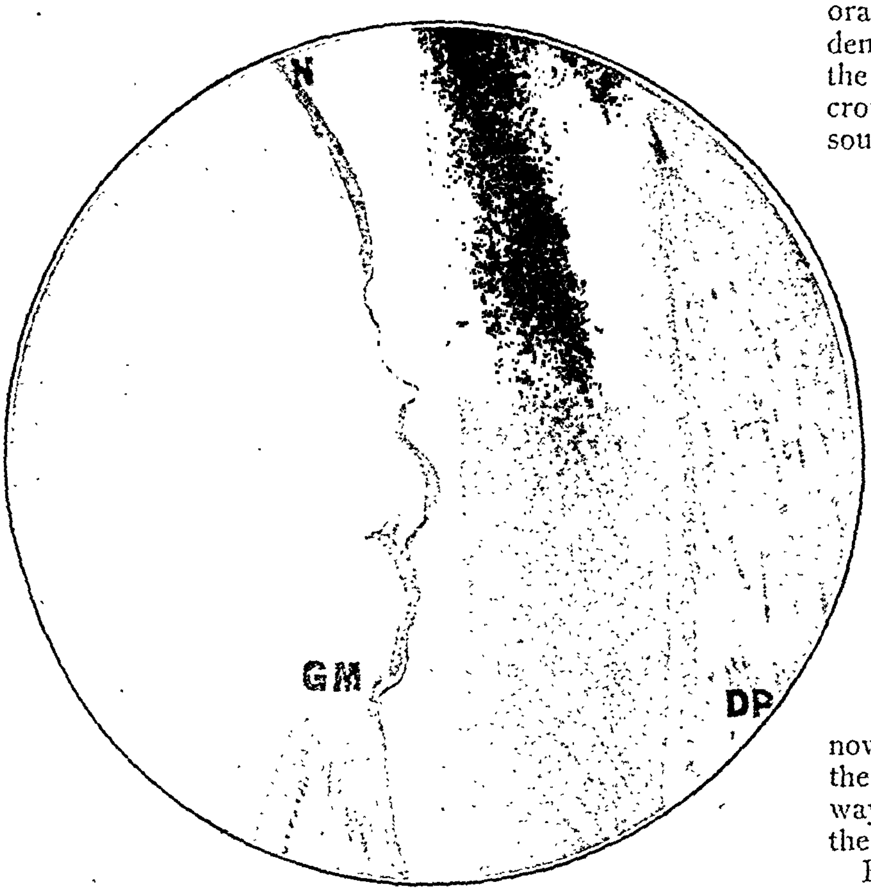

Fig. 16.—Same tooth higher above the gum margin: *D*, dentin; *D P*, dental pulp; *G M*, gum margin; *N*, Nasmyth's membrane; × 24.

For further proof that the external layer can and does extend entirely around the dentin of the roots of the teeth, the following illustrations are presented.

Figure 12 shows the lower part of the crown and roots of a human molar tooth. The crown had been imperfectly filled with gutta-percha, which did not reach the roots of the tooth. Layer after layer of cementum is seen between the roots. At the center and midway between the dentin and the cementum a bright spot is observed. Following this bright spot in either direction, a dark line may be traced moving between the dentin and the cementum down the entire length of the roots. The dark line is the epithelial layer extending around the dentin from the crown of the tooth. A loop of the external epithelium occurred at the bright spot, leaving a space, the granular layer of Tomes.

A higher magnification, Figure 13, gives a better detail of the cavity and the dividing line between the cementum and the dentin. The epithelial cells are well shown. A still higher magnification, Figure 14, shows the cells in a glandular formation. The question now is, How could epithelial cells migrate to the inner surface of dense tooth structure and be well nourished in any other way than that described? The external epithelial layer can be traced throughout the length of the root on either side up to the neck of the tooth.

As I have demonstrated that the external epithelial layer of the enamel organ may and does in many instances extend part way or entirely around the dentin of a molar or single rooted tooth, and that it may survive the entire length of life, we are now prepared to take up the subject of Nasmyth's membrane.

NASMYTH'S MEMBRANE

In some of the lower animals, especially the herbivora, the cementum alternates with the enamel and dentin to form the surface of the crown of teeth for the purpose of mastication.[3] The cementum for the crown of a tooth must be derived from the same source as that deposited on the root, since they are both contained in the sac or dental follicle. The sac of the tooth becomes the peridental membrane, and the peridental membrane produces the cementum.

We have seen that the fibrous sac and the external epithelial layer are in close contact throughout, and that the epithelial cells are nourished by the sac. As the tooth pushes its way through the bone by absorption, the epithelial layer and the sac wall follow the crown of the tooth. If the enamel is rough and pits are present owing to improper development, these tissues will cling to the enamel. On the other hand, if the enamel is quite smooth, these tissues will detach themselves and fold on the side of the alveolar process.

Figure 15 shows the neck of a tooth of a sheep. The epithelial layer and the fibrous sac, now the peridental membrane, are seen attached to the dentin on the root. They extend upward part way in the picture, and pass to the opposite side of the gingival space.

Figure 16 is taken higher up, showing Nasmyth's membrane on the opposite side of the gingival space and extending up to the point of the tooth, which does not show in this illustration. The epithelial cells and the fibrous sac can be readily seen.

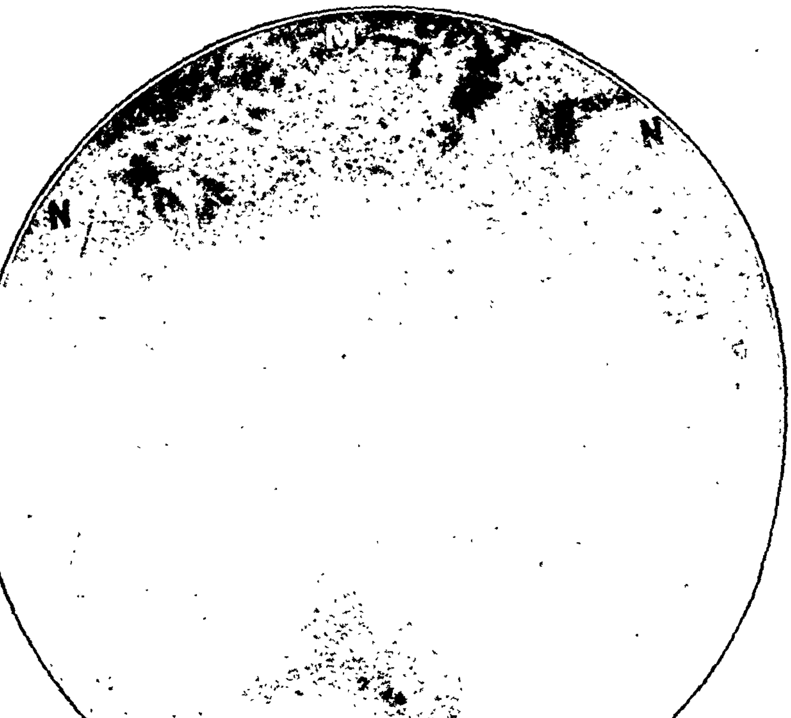

Fig. 18.—Taken from the upper border of Figure 5: *E*, enamel at cutting edge of tooth; *M*, external epithelial layer; *N*, epithelial débris; × 155.

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3. Owing to the length of this paper, details will be omitted.

Figure 17 shows a higher magnification of the first section of Nasmyth's membrane just above the gingival space. The epithelial cells and the fibrous sac with the line of demarcation are beautifully shown.

The peculiar consistency of Nasmyth's membrane is due to the action of acids on partly calcified epithelial cells in the preparation of the tissues for the microscope.

From an evolutionary point of view, the process of Nasmyth's membrane development in the human being is atavistic and is a survival from lower vertebrates.

Nasmyth's membrane may also be found in the pulp chamber. If we prepare the partly calcified odontoblastic layer for the microscope in like manner we obtain like results.

EPITHELIAL DÉBRIS [4]

Under a low magnifying power I have already demonstrated epithelial cells in the fibrous sac. These cells migrate into the fibrous tissue of the sac after the enamel has become fully formed and the external epithelial layer has separated itself and become attached to the inner surface of the sac wall Frequently part or all of the external epithelium does not come in contact, and the cells die. Cells that are nourished migrate in single cells or in any number from two to fifty or more. They arrange themselves in strings, in doubles, in loops and glandular forms. Naturally a large number are found near and just below the neck of the tooth for the reason that the external epithelial layer is always found at that locality, while it does not always extend part or all the way around the dentin of the root. The following illustrations are taken at birth while the dental follicle is still intact and the tooth is just beginning to push its way to the surface. These pictures are all of a higher magnification, ranging from 150 to 300 diameters.

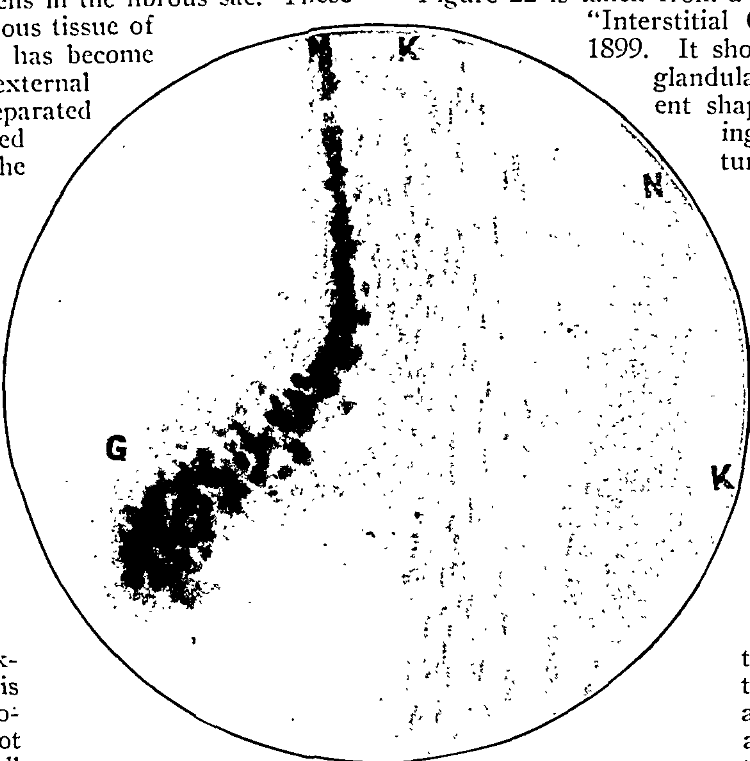

Fig. 21.—Higher magnification of the end of the external epithelial layer at *N*, in Fig. 5: *G*, granular or dead cells at the end of the disintegrating external epithelial layer; *K*, fibrous sac; *M*, epithelial layer; *N*, epithelial débris; × 400.

Figure 18 is one of the most interesting of all. It is located at the upper border of the sac and in the direct line of the advancing tooth. It shows the cutting edge of a human incisor tooth with a space between it and the external epithelium. Dead cells are seen on the surface of the enamel. The external epithelial layer is seen at the edge of this illustration. At the right, but not visible in the picture, is a break in the epithelial layer, and the fibrous sac has penetrated inside the layer. The fibrous tissue is observed below and in the space.

The epithelial cells or débris have migrated inside because of the fibrous tissue, instead of outside, as is usually the case.

Figure 19 shows the epithelial layer disintegrating at the right of the illustration; quantities of epithelial cells have migrated from the layer into the fibrous wall of the sac in the center. This picture is taken at the left of the crown of an incisor tooth at birth.

Figure 20 is taken at the right of a human incisor crown. Dead epithelial cells are seen on the enamel. The external epithelium is disintegrating. The live and dead cells are readily seen. Epithelial cells are seen at the left migrating into the fibrous structure.

Figure 21 shows the end of the epithelial layer taken from Figure 5. The layer is in close contact to the fibrous sac for the entire distance, except at the end. Cells are migrating into the fibrous sac at the right. At the end where the cells are not nourished, death is rapidly taking place.

Figure 22 is taken from a sheep and was shown in "Interstitial Gingivitis," published in 1899. It shows the cells in rows, in glandular groups, and in different shapes. The most interesting thing of all in this picture is the group of epithelial cells caught and embedded in the cementum. The wonder is that they are not more numerous.

Up to this period, that is, while the external epithelial layer is disintegrating, the dental sac is isolated from the surrounding tissues by a space. The fibrous tissue of the alveolar process now begins to develop toward the sac, and the space is closed, thus uniting the sac with the fibrous tissue of the alveolar process. Bone absorption now rapidly takes place, filling the fibrous tissue and encroaching on the fibrous sac. After the fibrous tissue of the alveolar process has united with the sac wall, the vascular supply has become established between the alveolar process and the sac, which has now become the peridental membrane, and for the first time cement begins to deposit on the dentin or on the external epithelial layer if it extends below the neck of the tooth.

In the study of embryology and histology of the jaws and teeth, my experience has been that one can obtain better results by taking the material of both animals and man at birth rather than embryos in their early development. The reason for this is that in all other tissues of the body, embryology and histology must be studied from the beginning of evolution, because the tissues go through the process of development but once. On the other hand, the dental tissues develop twice, and by taking the jaws at birth we have all of both sets of teeth still in the jaws under different stages of evolution. The jaws and tissues are more stable in their growth, the tissues are more easily recognized, and the relation of one structure to another is better outlined.

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[4] The author first described epithelial cells in the peridental membrane and named them "epithelial débris" in his work on "Interstitial Gingivitis or Pyorrhea Alveolaris," in 1899.

ABSTRACT OF DISCUSSION

Dr. Frederick B. Noyes, Chicago: Dr. Talbot is mistaken in his interpretation of the material. The enamel is formed from the internal and not from the external layer. The external layer disappears and the internal remains. Nasmyth's membrane is a myth. The condition which Dr. Talbot found in many of these specimens is characteristic of all material prepared by the decalcified process. For some unknown reason, the cementum separates from the dentin in the process of decalcification, especially if the acid used is too concentrated. It is often exceedingly difficult to decalcify, especially if the blocks are large and we are trying to retain the entire tooth without separation of the cementum at the line of the dentin; but I do not believe that this difficulty arises because there is there a line of epithelial cells. There is no evidence to support that view. The one thing I want to emphasize is the way the blood vessels follow the dental papilla. The blood vessels enter the dental papilla through its base. That is one of the items which must be considered in the investigations in regard to the retention of pulpless teeth.

Dr. Martin Dewey, Chicago: Some of the conclusions Dr. Talbot arrived at are based on misinterpretations of the specimens. What he called dentin was only the dentin papilla. The dentin had not yet formed on those specimens. He called attention to the tooth of a dog which he showed as a perfectly calcified tooth and did not mention the gingival ridge which is so well developed in the dog's tooth. The root had not begun to calcify in that tooth.

Dr. Eugene S. Talbot, Chicago: I am aware of the fact that the substance of this paper is new and original, and that the text is entirely opposed to the views laid down in our textbooks. While it is possible, and perhaps true, that these types are not to be found in every tooth in our present state of evolution, yet I have found these conditions in the teeth of many persons of advanced age as well as in the lower vertebrates. I believe that these conditions are atavisms, of lower vertebrate types, but I have not had sufficient experience with microscopic structures of the lower vertebrates to express a definite opinion. They seem, however, to be degeneracies. The opposite views expressed offhand by those who discussed the paper can have little or no weight since the same amount of research with the same materials must be done before an intelligent opinion can be expressed. I would hardly dare to present such radical views in regard to the freakish actions of the epithelial cells if I were not supported by such men as Drs. Ludvig Hektoen, E. R. LeCount and Adelbert M. Moody, of Chicago, who devoted considerable time to studying the microscopic slides of the epithelial structures.

Social Hygiene Society.—In April the Massachusetts Society for Social Hygiene, 50 Beacon Street, Boston, began the publication of a quarterly bulletin for the promotion of the purposes of the society. In the first number, the objects of the society are set forth, together with its organization and methods of work. In a review of venereal disease legislation, attention is called to the new Massachusetts law for licensing, inspecting and regulating hotels and private lodging houses which may be concerned in promoting prostitution and venereal diseases. The bulletin gives in full the Massachusetts regulations governing the reporting of gonorrhea and syphilis. For the benefit of the public, the society also circulates pamphlets on social hygiene subjects, among them being Circular No. 4 on Venereal Diseases, and also a list of publications on social hygiene subjects. The executive committee of the organization consists of Charles W. Eliot, Earnest B. Dane, Dr. Hugh Cabot, Dr. David L. Edsell and the Rev. G. W. Miner.

OBSERVATIONS ON THROAT SMEARS IN MEASLES, RUBELLA (GERMAN MEASLES) AND SCARLET FEVER *

RUTH TUNNICLIFF, M.D.
CHICAGO

In previous articles,[1] I have described gram-positive diplococci, isolated in anaerobic cultures from the blood of measles and rubella patients. The measles diplococcus is small and round; the rubella diplococcus is larger, elongated, with pointed ends and a capsule. Diplococci similar to those isolated from the blood were also cultivated from the throat, nose, eye and ear of measles patients, and from the throat of rubella patients.

Examination of smears made early in these diseases from the tonsils and anterior pillars of the fauces has been found to show large numbers of diplococci corresponding morphologically to those found in the cultures. These diplococci begin to disappear with the abatement of the throat infection.

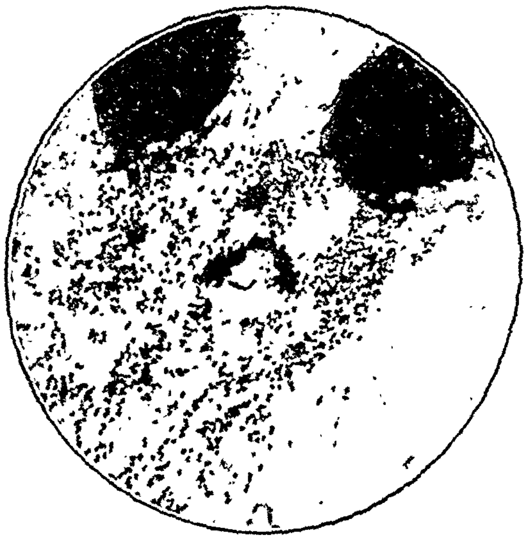

Fig. 1.—Smear from measles throat; carbol-gentian violet; × 1,000.

The tonsils or anterior pillars of the fauces, the part most inflamed, is swabbed with a sterile swab, the material smeared rather thickly on a clean glass slide, fixed with heat, stained a few seconds with carbol-gentian violet, washed with water, and dried. The material may be smeared in serum and stained with some capsule stain, but the carbol-gentian violet stains quickly and gives a perfectly clear picture.

Of 135 throat smears examined, 18 were from measles, 29 from rubella, 30 from scarlet fever, 10 from diphtheria, 10 from streptococcus sore throat, 8 from mild (simple) sore throat, and 30 from normal throats.

As a rule the smear from a measles throat shows a variable number of polymorphonuclear and epithelial cells, and many small, round diplococci about 0.5 micron in length.

A smear from a rubella throat shows few if any leukocytes, but many epithelial cells, containing elongated, pointed cocci in pairs, sometimes in chains, often showing a narrow capsule. The diplococci are also seen outside the cells, but are especially characteristic when on the epithelial cells.

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* From the Memorial Institute for Infectious Diseases.

[1] Tunnicliff, Ruth: The Cultivation of a Micrococcus from Blood in Pre-Eruptive and Eruptive Stages of Measles, The Journal A. M. A., April 7, 1917, p. 1028; Observations on the Bacteriology and Immune Reactions of Rubeola (Measles) and Rubella (German Measles), Jour. Infect. Dis., 1918, **22**, 462.

Smears from scarlet fever throats show many polymorphonuclear leukocytes and a variable number of cocci, usually round, in pairs, or chains of rarely more than four, with generally a wide capsule.

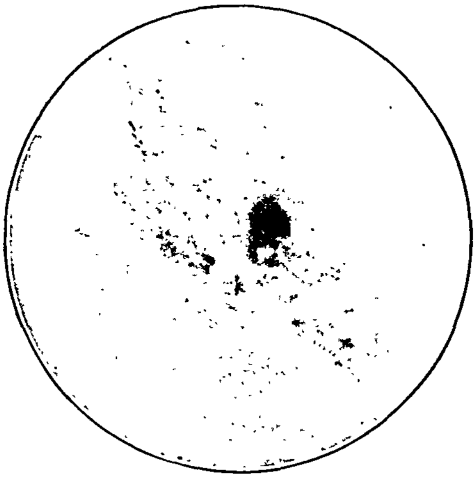

Fig. 2.—Smear from rubella throat; carbol-gentian violet; × 1,000.

I find that the hemolytic streptococci isolated from the throats of scarlet fever patients as a rule show a capsule, at least in the first generation. This is in accord with the observations of Smillie,[2] who found that freshly isolated hemolytic streptococci had a "capsular substance," disappearing rapidly on cultivation. He does not consider it a true capsule. The encapsulated diplococci in the smears are readily differentiated from cocci with a clear zone of retraction.

It has not been possible to distinguish the diplococcus in the scarlet fever throat smears from those in nonscarlatinal throats containing hemolytic streptococci (diphtheria, streptococcus sore throat, and measles). In a case of rubella following scarlet fever, both types of diplococci were observed in the throat smears.

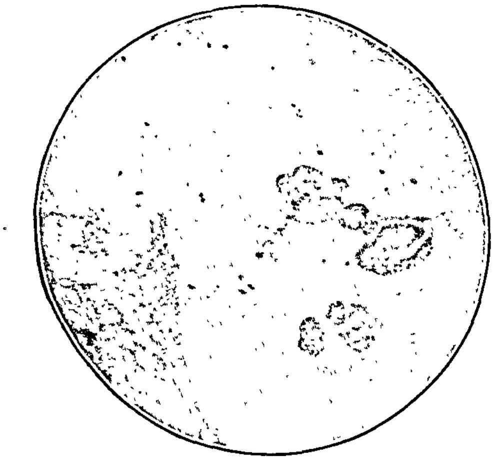

Fig. 3.—Smear from scarlet fever throat; carbol-gentian violet; × 1,000.

If the tonsils contain crypts so that a great variety of bacteria are present, it may be impossible to recognize any characteristics pointing to the source of the smear. A successful smear from the diagnostic point of view must contain one predominating diplococcus.

The three types of diplococci described were not recognized in the thirty normal throats, except four times, when the rubella coccus was found in persons closely associated with rubella patients. The rubella diplococcus was also observed in three of the eight cases of so-called simple sore throat, two in roommates and one in a nurse of rubella patients. These smears were made during an epidemic of rubella, and doubtless the other diplococci can be found in smears of normal throats during epidemics of measles and scarlet fever.

There is rarely much difficulty in making a diagnosis of measles, but at times it is not easy to differentiate a mild case of scarlet fever from rubella. In the Durand Hospital, throat smears are proving helpful in differentiating these two diseases, especially in conjunction with leukocyte counts, as the number of leukocytes is increased in scarlet fever and reduced in rubella.

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[2] Smillie, W. G.: Jour. Infect. Dis., 1917, **20**, 45.

RUPTURE OF THE UTERUS THROUGH THE CESAREAN SECTION SCAR*

EMIL NOVAK, M.D.
BALTIMORE

The number of cases of rupture of the uterus following cesarean section that had been reported up to 1913 was sixty-three, according to the exhaustive review of the literature published in that year by Findley.[1] By 1916 the number had risen to seventy-four,[2] and since then a number of other cases have been reported. The occurrence must, therefore, be looked on as relatively rare, so that it would seem to be worth while to put even a single case on record. Aside from the infrequency of rupture of the cesareanized uterus, I have been led to report the following case by certain rather unusual circumstances attending it, and also by its pertinence to the debate as to the correctness or incorrectness of the old dictum, "Once a cesarean, always a cesarean."

REPORT OF CASE

History.—A white woman, aged 19, had had a cesarean section performed, May 5, 1916, the indication having been intrapartum eclampsia. The operation was performed by one of the most competent obstetricians in Baltimore. The child was delivered dead, but the mother recovered from the operation and her convalescence was uneventful, except for a slight infection of the abdominal incision.

The patient enjoyed good health and menstruated regularly up to October, 1917. The last regular menstruation appeared, Oct. 13, 1917. Some months later the patient consulted Dr. B. O. McCleary, who diagnosed pregnancy. The course of this second pregnancy was normal in every way. At about the expected date of confinement, July 15, the patient went into labor, and was then transferred to the hospital. Her own statement as to this confinement is that there were only two or three typical labor pains, these being followed by severe and constant pain over the entire abdomen, associated with some rigidity of the abdominal walls. This diffuse pain persisted for three days, being accompanied by a fever ranging from 99 to 101.5 F., and by a slightly accelerated pulse, never higher than 100. After the subsidence of the pain, on about the fourth day, the patient was able to get around fairly comfortably, but she remained in the hospital awaiting the reinauguration of labor. According to Dr. McCleary, no fetal heart sound was to be heard after this spurious labor, nor did the patient perceive any fetal movements.

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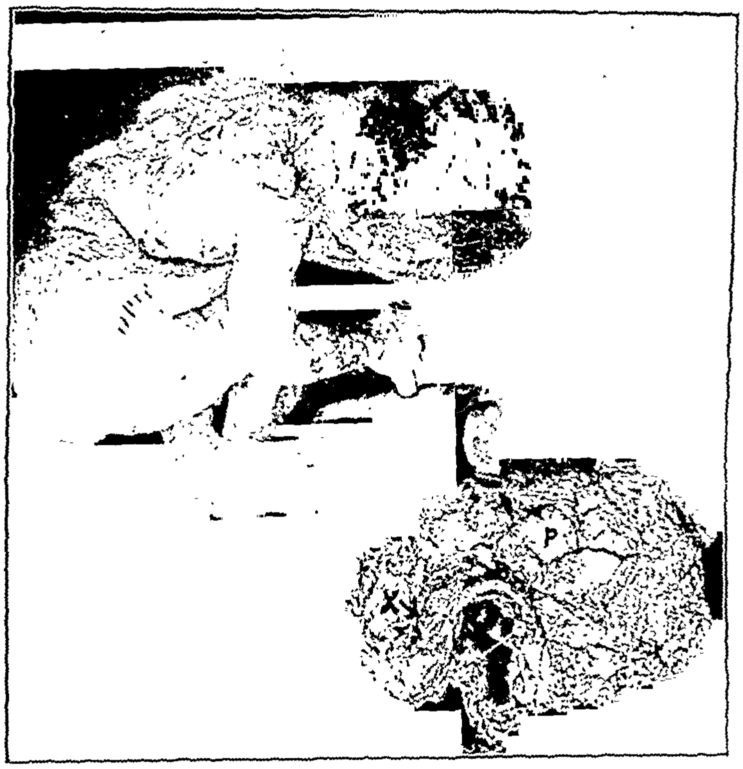
* From the Gynecological Department of Johns Hopkins University.

[1] Findley, P.: Am. Jour. Obst., 1916, **74**, 411.

[2] Bell, J. N.: Am. Jour. Obst., 1916, **74**, 950.

Examination.—About six weeks after the expected time of confinement, August 29, I saw the patient in consultation with Dr. McCleary. At this time the abdomen was enlarged to the size of a full term pregnancy, the walls being quite rigid, so that the fetal parts could not be mapped out. No fetal heart sounds were heard. On vaginal examination, I was surprised to find that no presenting part could be felt, the cervix being closed and fairly firm, not resembling in feel the cervix of pregnancy. In view of the rather clear-cut history, and of the foregoing findings, only one diagnosis seemed possible—that of rupture of the uterus with extrusion of the fetus into the abdominal cavity.

Operation.—The operation was performed, September 1. A long incision was made paralleling that of the previous cesarean section. Just above the umbilicus a thick, spongy tissue was encountered, which, on extension of the incision, was found to be the placenta. A few centimeters above the placental area, the amniotic sac was entered. About 2 quarts of clear amniotic fluid escaped. A large, partly macerated fetus was found lying in the abdominal cavity in an oblique position, the head being above and to the right, under the dome of the diaphragm, and the extremities extending downward and to the left. The amniotic sac was intact, except where it had been incised on the opening of the abdomen. The uterus had undergone involution after rupture, being about the size that one would expect six weeks postpartum. The anterior wall of the uterus had been split asunder through the line of the old incision, the rift extending from the fundus to about the level of the internal os. This is well shown in the accompanying illustration, which also shows the manner in which the placenta was turned out through the uterine gap, partly reimplanting itself later on the anterior parietal peritoneum. Both fallopian tubes were covered with light, sheetlike adhesions. The right ovary was thoroughly disorganized through cystic degeneration, being about the size of a pullet's egg.



The arrow at *x* points to the rent in the anterior wall of the uterus. The placenta (*p*) has everted itself through the uterine wound, reimplanting itself on the anterior parietal peritoneum. Attached to the placenta is the fetus, showing beginning maceration.

A subtotal hysterectomy was performed, the left ovary, which was normal, being conserved. On removal of the uterus, together with the attached placenta, umbilical cord and fetus, an enormous cavity was left. The walls of this were formed in a general way by the parietes anteriorly, and by the adherent coils of intestine above and behind. It was a beautiful illustration of foreign body encapsulation. The inside of the cavity was lined by tightly adherent amniotic membrane, which was removed where this was possible. The large cavity left on the removal of the fetus was then marsupialized, several large cigaret drains being introduced in various portions, and then brought out through the abdominal incision. The latter was closed in tiers in the usual manner, being reinforced by a number of interrupted silkworm-gut sutures. Recovery from the operation was uneventful, the patient being discharged from the hospital three weeks after the operation.

COMMENT

A striking feature of this case was the fact that the occurrence of uterine rupture was not associated with internal hemorrhage or with shock. This observation, while unusual, is not unique, a case similar in this respect having been recently reported by Neill.[3] The uterine scar in my patient seems to have been separated without producing any hemorrhage whatsoever, perhaps because of the tampon-like action of the fetal head, as it was delivered through the gap. Certainly there was no sign of either old or recent hemorrhage at the subsequent laparotomy, nor was there any appreciable degree of shock at the time of the occurrence of the rupture. As has been stated, there was more or less diffuse abdominal pain for a few days, but after that the patient was comparatively comfortable, walking about the ward with little inconvenience.

From the standpoint of obstetric practice the most important feature of this case is furnished by the history of an infected abdominal incision, with slight fever for several days, after the cesarean section which had been performed in 1916. The investigations of Williams,[4] Findley[1] and others assign great significance to such an occurrence. It appears to have been pretty well demonstrated that uterine rupture after cesarean section practically never occurs when the convalescence from the cesarean operation has been entirely normal, that is, when there has been no febrile reaction or other evidence of infection of the uterine scar. In other words, assuming that the uterine wall has been properly sutured, rupture in subsequent pregnancies will not take place if the uterine incision heals promptly, without infection. The invasion of the uterine scar by decidual elements in subsequent pregnancies, to which some have attached importance as predisposing to rupture, is probably of much less importance than the element of infection. In my patient, the occurrence of stitch infection in the abdominal incision after the cesarean section may be taken as prima facie evidence of infection and poor healing of the uterine incision, which had been sutured by the best technic.

As far, therefore, as the bearing of the case on the general question is concerned, it emphasizes the ominous significance of infection in the uterine incision as an element of danger in subsequent pregnancy. On the other hand, nothing in the case shakes in any way the position held by most obstetricians that the management of cesarean patients in subsequent pregnancies should not be too strongly influenced by the fact that rupture of the uterus occurs in a small proportion of the patients, probably not exceeding 2 or 3 per cent.

26 East Preston Street.

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[3] Neill, T. E.: Am. Jour. Obst., 1917, 75, 235.
[4] Williams, J. W.: Bull. Johns Hopkins Hosp., 1917, 28, 335.

Clinical Notes, Suggestions, and New Instruments

APPARATUS FOR ARTIFICIAL PNEUMOTHORAX

Charles M. Montgomery, M.D., Philadelphia

Even the smallest apparatus now on the market for the administration of artificial pneumothorax is unduly bulky and heavy to carry by hand. To obviate these difficulties the apparatus described herein, which, incidentally, costs practically nothing, has been found useful. It requires only one bottle, the gas container, the gas in this bottle being displaced by water that enters the container from a funnel. The neck of the bottle is fitted with a rubber stopper of the type shown in Figure 1 or smaller. This stopper has two perforations, one to hold the funnel stem, the other to hold the exit tube, which is made of glass bent at an angle. When the cork is in place in the bottle and water is poured into the funnel, the water will run into the bottle, displacing the air, which escapes by way of the exit tube, unless, as will happen under certain conditions, some of the air finds its way back through the funnel stem and so out through the funnel. This is effectually prevented by using a trap such as a glass U-tube, one limb of which is connected with the lower end of the funnel stem by a piece of rubber tubing, as shown in Figure 1. If air is prevented from escaping through the glass tube of exit, the water soon ceases to flow from the funnel into the container. Under these conditions the pressure in the container will be represented by the distance between the free end of the U-tube used as the trap, and the upper level of water in the funnel. This distance, and therefore the pressure, measured in centimeters of water, are capable of a satisfactory degree of regulation. It is preferable to see that the funnel does not at any time become entirely empty.

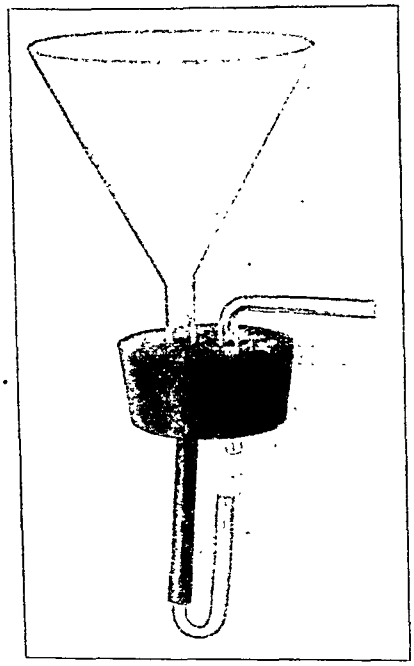


Fig. 1.—Stopper and funnel.

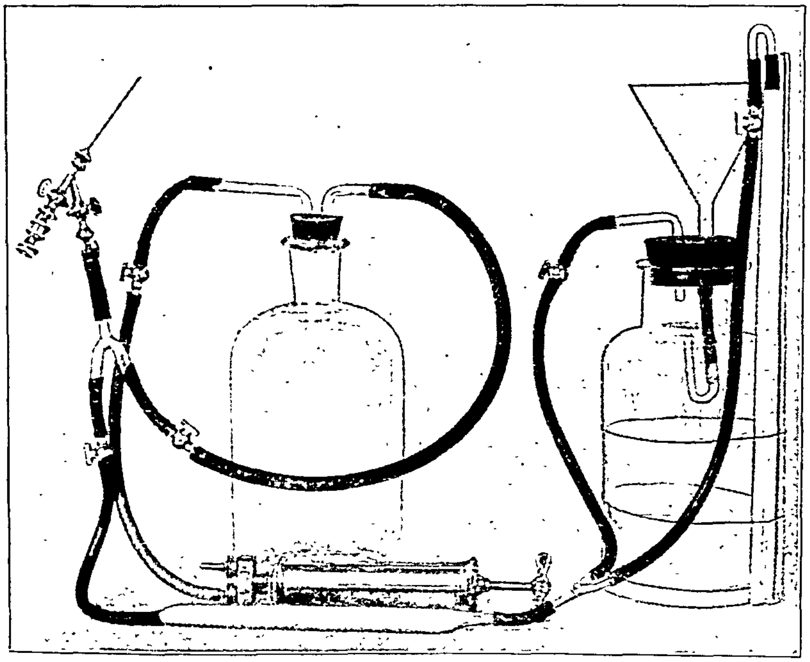


Fig. 2.—Combined apparatus for aspiration and artfical pneumothorax.

A bottle of any desired size may be used as the gas container, one of about a liter capacity being shown to the right in Figure 2. Beyond the tube of exit from the container, the tubing, etc., are arranged very much as in the customary way. For convenience the manometer is held against the container bottle by rubber bands. If air is selected for treatment, the different pieces in the apparatus can be separated from one another so that they will occupy a very small space. In fact, if one carries a perforated cork of the proper size, he can usually pick up in the patient's house or in a drug store a suitable bottle to act as container. If nitrogen is preferred, the container must be carried with the cork in place and with the funnel and exit tube in the cork, the opening in each being closed to prevent escape of the gas. The apparatus set up in this way will, of course, occupy a slightly larger space than if it is taken apart; but the weight will be no greater. A small handbag will suffice to hold the apparatus. The only thing that needs to be carried in a sterile condition is the cotton filter. For this purpose a wide glass tube about 5 inches in length fairly firmly packed with cotton has proved satisfactory. The needle and the tubing, etc., between the needle and the filter can be sterilized at the last minute.

The withdrawal of pleural fluid and its replacement by air, performed with a single needle and puncture, can readily be carried out by using the apparatus just described. The entire outfit essential for alternate withdrawal of fluid and replacement by gas is shown in Figure 2, the gas container with empty funnel in position being on the right, and the aspirating bottle with suction apparatus in front of it being on the left. The needle is seen attached by rubber tubing to an inverted glass Y-tube, the right limb of which leads to the aspirating bottle, a single stopcock being placed between. The left limb of the inverted Y-tube leads indirectly to the gas container, the bottle shown in the right of the picture, with the manometer supported by rubber bands. Between the Y-tube and the container are seen: rubber tubing, stopcock, rubber tubing, glass tube containing cotton to filter the air (shown in the foreground), and rubber tubing beyond the filter, the distal end of which connects with a second glass Y-tube. The right limb of this leads to the manometer, with one stopcock between; the other limb leads to the tube of exit in the gas container, a single stopcock intervening. When there is water in the funnel and the pressure in the aspirating bottle is negative, proper manipulations of the various stopcocks will permit alternate withdrawal of fluid and replacement by air, the needle being in fluid located in the pleural cavity.

Figure 3 shows a patient with a large amount of fluid on the left side and marked dextrocardia, while even the trachea is misplaced far to the right.

Figure 4 shows the same chest after withdrawal of fluid and replacement with air, a single needle puncture being used.

The fluid in this case was purulent, the result of tuberculosis, and had existed for six months, with the result that *the heart had not only been pushed to the right but had* actually become anchored there, as manifested by severe distress and a marked negative pressure after withdrawal of a few hundred c.c. of fluid, the symptoms and negative pressure being immediately altered *for* the better by injection of air. *Alternate* withdrawal of fluid and replacement by air were continued till the pleural cavity was almost completely *emptied of fluid,* about *2,200* c.c. in all, the patient being left entirely comfortable and the intrapleural pressure being about the same as at the start.

2210 Locust Street.

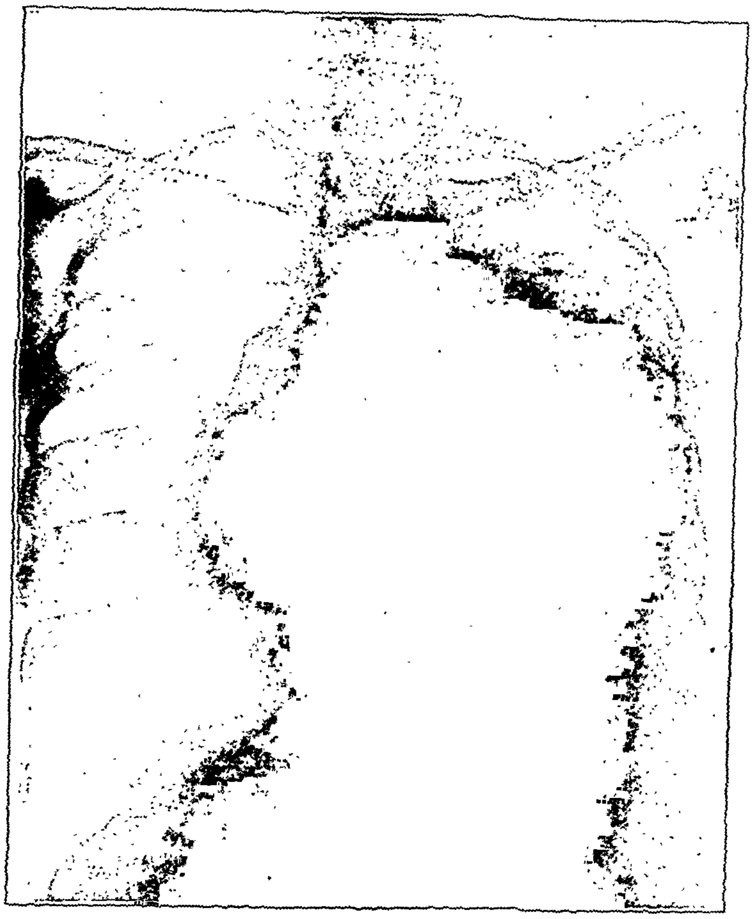


Fig. 3.—Patient with large amount of fluid on left side and marked *dextrocardia.*

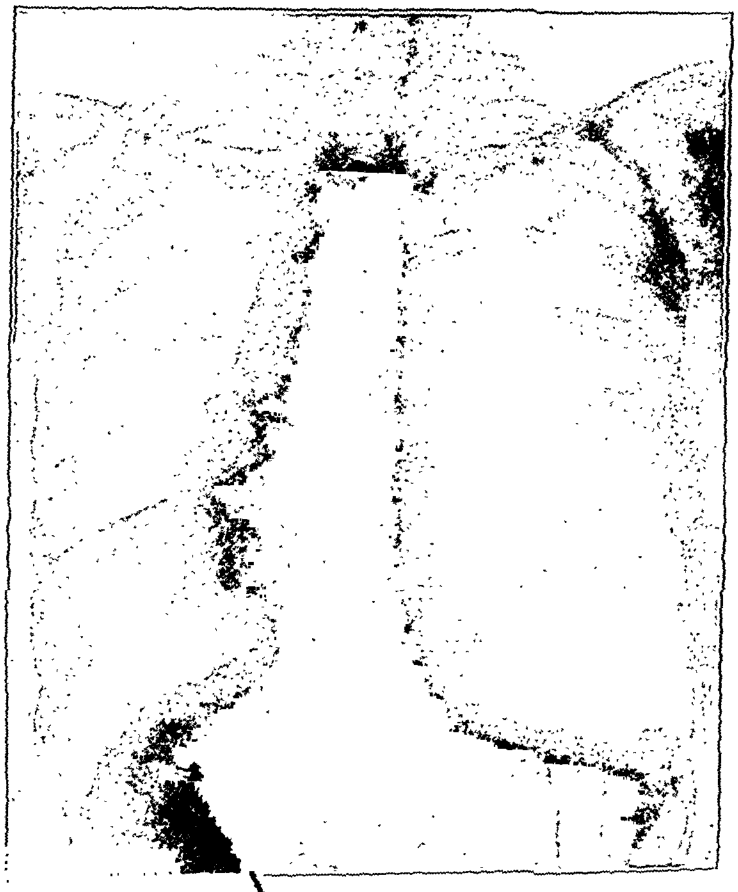
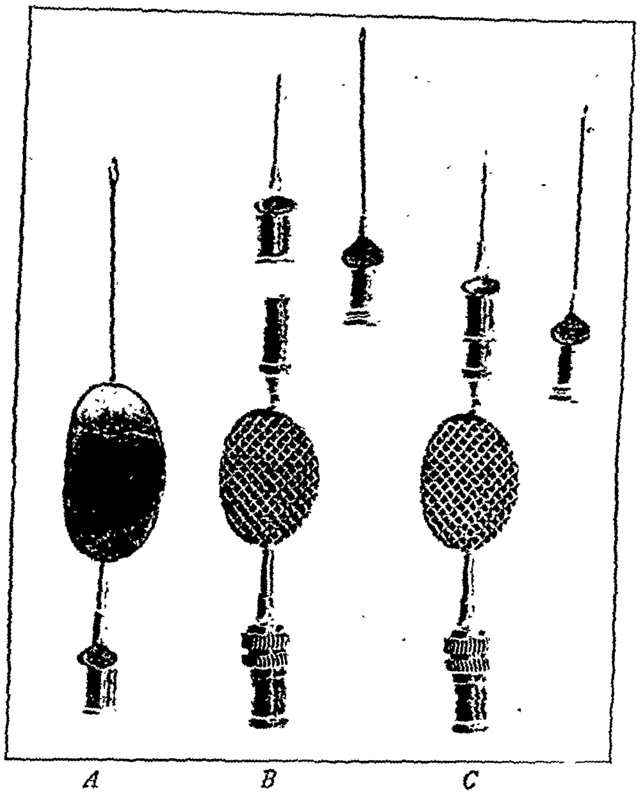


Fig. 4.—Chest of patient after withdrawal of fluid and *replacement* with air.

A "SCHREIBER" ADAPTER FOR INTRAVENOUS INJECTIONS [*]

J. H. Stokes, M.D., Rochester, Minn.

Those who appreciate the good qualities of the Schreiber needle in meeting the difficulties of intravenous injection technic will appreciate the serviceability of the device here illustrated, which has been in use in my service for several months. *The Schreiber needle* is made in only one, or at most two sizes. This adapter makes possible the use of a needle of any size desired to meet the indications in a particular case. The needle proper is attached to the standard Lüer hub of the adapter, and adapter and needle are then used together as one instrument, in accordance with a technic that I have already described.[1] The device was developed in cooperation with Mr. P. L. Pinkerton of the Precious Metals Tempering Company, who submitted a sketch and later a specimen for clinical trial. Whenever, for any reason, it is found necessary to inject amounts of solution too large to be readily administered with a syringe into small or difficult *veins, such as those of the scalp, hand and wrist, this* adapter has proved exceedingly useful.



A, Conventional type of Schreiber needle; *B*, Schreiber adapter with two different types of needles; *C*, Schreiber adapter with 22 gage hypodermic needle attached.

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[*] From the Section of Dermatology and Syphilology, Mayo Clinic.

[1] Stokes, J. H.: Certain Technical Refinements in Methods of Intravenous Injection, Med. Rec., New York, 1917, **152**, 13.

Recrudescence of Malaria in England.—Attention has been called to the possible recrudescence of malaria in England as one of *the minor* results of the war. It is known, says the *Scottish Geographical Magazine,* that anopheline mosquitoes exist in England, and men returning from malarious districts of the east and the Balkans with the parasites in their blood afford favorable foci for the spread of the disease in England. Some cases of indigenous malaria, it is said, have already been found in England and the Local Government Board is already making inquiries looking to precautions against the spread of the disease from returned carriers.

A NEW INHALER FOR NITROUS OXID ANESTHESIA

Albert H. Miller, M.D., Providence, R. I.

This inhaler for nitrous oxid or for nitrous oxid with oxygen or with ether vapor comprises a celluloid face piece with an inflatable rubber rim, an inspiratory valve, an expiratory valve, and a combined supply and rebreathing bag.

In the top of the face piece are two openings, in one of which is mounted the expiratory valve, closed by an outwardly opening disk of aluminum or mica controlled by a delicate and adjustable spring. The second opening communicates by a short tube with the base of a cup, open at the top and having two openings in the side, one for the admission of air and the other communicating by a short tube with the supply and rebreathing bag. A second cup is inverted and ground to fit closely into the outer cup. Diametrically opposite in the sides of the inner cup are two openings, one fitted with the inspiratory valve, closed by an inwardly opening disk of aluminum or mica. The inner cup revolves within the outer and is provided with a stop for three positions, in the first of which the patient breathes air through valves, the opening of the supply bag being closed; in the second, gas through valves, the air opening being closed; in the third position, gas to and fro, the inspiratory valve being idle.

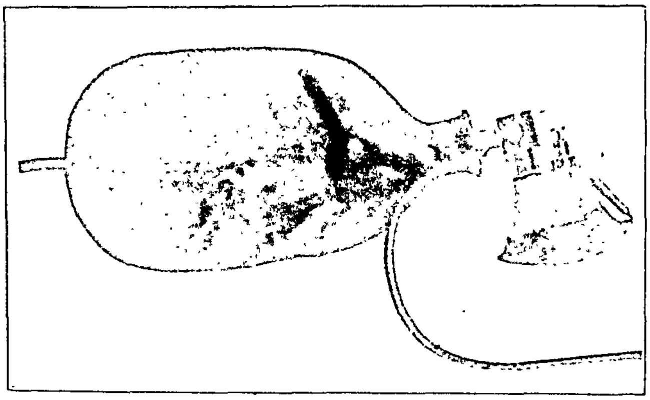

Fig. 1.—Inhaler assembled.

The first position of the inspiratory valve, allowing air to be breathed through the valves, permits the adjustment of the inhaler to the face with the supply bag filled. The patient tests the apparatus by breathing air through valves before gas is turned into the face piece. This important point, brought out by Hewitt many years ago, is frequently overlooked at present.

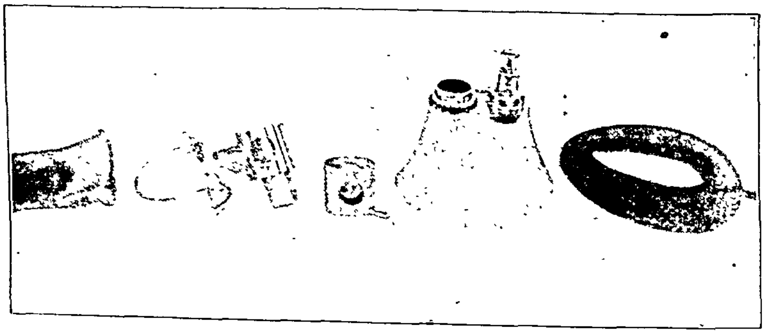

Fig. 2.—Parts of inhaler: From left to right, wide mouthed bag; outer cylinder with bag adjustment, wire mask and supply tube; inner cylinder with inspiratory valve; face piece with expiratory valve; rubber rim.

The second position, allowing inspiration of gas from the supply bag and total expiration through the expiratory valve, results in a more rapid replacement of intrapulmonary air by gas than when rebreathing is indulged in from the first, and a correspondingly rapid induction of anesthesia and absence of excitement.

The third position, with the inspiratory valve idle, converts the supply bag into a rebreathing bag. With a constant flow of gas into the bag, the first part of each expiration, consisting largely of unused gas from the upper respiratory passages, passes into the bag until it is completely filled. The latter part, coming from the lower respiratory channels and pulmonary alveoli, passes out through the expiratory valve. The proportion of the expiration which is retained in the bag and rebreathed depends inversely on the rate of flow of fresh gas into the bag; the more rapid the flow of gas, the less space remains to be filled by the expiration and the greater proportion of the expiration escapes. The proportion of rebreathing may be estimated by noting the point in expiration at which the expiratory valve opens. The tension of the spring controlling this valve is just sufficient to keep the valve closed until the bag is filled.

To sterilize, the expiratory valve is unscrewed and removed. The cups containing the inspiratory valve are separated and detached from the face piece. The inspiratory valve cap is unscrewed and removed. The supply and rebreathing bag, which is wide mouthed and reversible, together with the rubber rim, is sterilized in boiling water. All metal parts are sterilized in boiling water. The celluloid face piece may be placed in boiling water momentarily. It would be destroyed by prolonged boiling.

This inhaler is light, simple, efficient, and readily sterilized.

131 Waterman Street.

METHOD FOR STAINING THE DIPHTHERIA BACILLUS

Foster A. Beck, M.D. (Windgap, Pa.)
First Lieutenant, M. R. C., U. S. Army, in Charge of Laboratory, Post Hospital, Aeronautical General Supply Depot and Concentration Camp
Garden City, L. I., N. Y.

The examination of a large number of smears taken from throat cultures for the diphtheria bacillus, led me to devise a method of staining that has given me excellent results. It is as follows:

STAIN 1

Gentian violet (saturated alcoholic solution)	10 c.c.
Acetic acid solution, 4⅓ per cent. (distilled water being used)	90 c.c.

STAIN 2

Bismarck brown	0.480 mg.
Distilled water	125 c.c.

The water should be heated to boiling, then the Bismarck brown should be added, and the mixture boiled for one or two minutes and filtered cool.

The smear should be spread thin and even on the slide, dried in the air and then passed several times through the flame of an alcohol lamp or a Bunsen burner to fix.

The specimen should be stained for thirty seconds with Stain 1, the excess stain washed off with water, and without the specimen's being dried Stain 2 should be added for ten or fifteen seconds, and the specimen washed in running water, dried and examined with oil immersion.

The bacillus, when present, stains as follows: The body of the bacillus becomes a delicate shade of purple or brown, and the clubbed ends and polar bodies, dark purple or black.

Staphylococci, streptococci and pneumococci, when presented, should be stained brown, or brown with a tint of purple.

This method of staining has given me an average of 5 per cent. more positive cultures than any of the other standard methods.

An average of two minutes is the time required to stain the specimen and to examine and make the diagnosis.

Regimental Officers.—The regimental medical officer is a person of protean pursuits. His interests reach from the cleanliness of the cook's hands to the care of the wounded under fire.—McCombe and Menzies.

Military Medicine and Surgery

TRENCH FEVER*

A REPORT OF CLINICAL OBSERVATIONS AND RESEARCH AS TO THE ETIOLOGY, PATHOLOGY, PROPHYLAXIS AND TREATMENT OF TRENCH FEVER AMONG TROOPS

MAJOR W. BYAM, R. A. M. C.; CAPT. J. H. CARROLL, M. R. C., U. S. ARMY; LIEUT. J. H. CHURCHILL, R. A. M. C. (T.); CAPT. LYN DIAMOND, R. A. M. C.; LIEUT. L. LLOYD, R. A. M. C.; CAPT. V. N. SORAPURE, R. A. M. C., AND LIEUT. R. M. WILSON, R. A. M. C.

HAMPSTEAD, ENGLAND

(*Continued from page 26*)

THE CHRONIC DISEASE

It has become evident that in a large proportion of trench fever patients invalided to England there is a tendency to advance through a subacute toward a chronic condition with symptoms of disordered action of the heart and also in some cases of neurasthenia. The features of the chronic condition are most easily described by citing a case history of one of our patients, an A 1 man who went through his training without difficulty.

In November, 1915, he went to France, where he remained at full duty till the spring of 1916, when he reported sick several times with pains in the back, head and legs. This was diagnosed as "influenza." After he returned to duty he noticed much aching in the knee joints and also some headache. He was admitted to hospital in France three times, each time with fever. In September, 1916, he was admitted to hospital (his third admission) with pains in the back and legs, and a temperature of 103 F. He was confined to bed for four weeks. A diagnosis of rheumatic fever was made and the patient invalided to England, where he spent two weeks in bed and ten weeks more in hospital. On getting up he noticed that he was breathless.

His headaches continued until his return to France in March, 1917. Four days later he reported with fever and was excused duty for four days. He then finished his retraining. In the middle of June he again reported sick with fever and pains in the head, back and legs, becoming worse in the evening. This time he was excused duty for ten days.

June 30, 1917, he was sent to a field ambulance with symptoms as above. From there he passed to a base hospital where he remained fourteen days. His case was diagnosed as trench fever and he was invalided to England. He was admitted to hospital at Hampstead, July 14, 1917. This was approximately the four hundred and seventieth day of the disease. From this date there were frequent small rises of temperature. The patient was a man of good physique but looking ill. He complained of constant aches in the legs and shins and said his legs felt like giving way under him. The hands and feet were sweating and tremulous. A vivid red tache was present on light stroking. The area of splenic dulness was enlarged to percussion, but on account of tenderness of the left hypochondrium the spleen could not be palpated. The patient complained also of breathlessness on exertion, palpitation of the heart, pain over the precordium and giddiness, the symptoms known as effort syndrome or disordered action of the heart. The heart was not enlarged, and the sounds were normal. He was markedly exhausted.

This case is not an exaggerated picture of the established chronic trench fever, which may therefore be defined as a state of marked debility with or without attacks of slight fever and aching and characterized by a hyperexcitability of the nervous system in general. The symptoms encountered may be thus summarized in the order of their importance: (1) exhaustion; (2) giddiness and fainting; (3) headache; (4) breathlessness on exertion; (5) pain; (6) irritability; (7) lassitude; (8) sweating; (9) coldness of the extremities; (10) palpitation and cardiac irregularity, and (11) fever.

Before the symptoms are discussed in detail, it must be pointed out that all these symptoms are present in the major portion of chronic cases.

In the handling and distribution of cases necessitated by military exigencies, patients with predominant symptoms will tend to be evacuated to cardiac hospitals, patients in whom nervous symptoms are marked to neurologic hospitals, and patients complaining of pains and aches to institutions for the treatment of rheumatic conditions. All these patients, however, if carefully examined will be found to show, in greater or less degree, the syndrome detailed above.

ACTION ON THE VAGUS SYSTEM

While it is extremely difficult to prove on what part of the central nervous system trench fever acts, we believe that a body of evidence exists which points to a specific action on the vagus. This evidence may be grouped under three heads:

1. It was observed by Lewis while studying disordered action of the heart that there was a tendency in some of these cases to what was described as "vagus lag," that is, a failure of the pulse rate to return to normal after the performance of a specific exercise. In other cases of disordered action of the heart the pulse returned rapidly to normal. A close study of this phenomenon (the return of pulse rate after exercise) in cases of trench fever has shown that the tendency is for a rapid and even exaggerated return to take place. Thus in a series of eight cases selected at random the pulse returned to below its rest rate in half a minute in two instances. In other words, the pulse had reached its normal rate in all in normal time. These were cases entering the chronic stage of the disease. In the acute stage a relatively slow pulse is the rule, and the return of the pulse rate to normal after effort is invariably exceedingly rapid. "Vagus lag" therefore in these cases is replaced by "vagus pull." This becomes more evident when a comparison is made with the return of the pulse in gas-poisoning controls.

2. It was observed that in a proportion of patients suffering from trench fever a long, deep inspiration was attended by a marked slowing of the pulse, with or without loss of volume. In a few instances, only loss of volume was observed. The phenomenon was studied in control cases with no history of trench

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*Note.—The work on which this paper is based has been carried out at Hampstead for the War Office Trench Fever Investigation Committee, of which Major-General Sir David Bruce, K.C.B., F.R.S., A.M.S., is chairman. The members are: Lieut.-Col. D. Harvey, C.M.G., R. A. M. C.; Prof. H. Plimmer, F.R.S.; A. W. Bacot, Esq.; Major W. Byam, R. A. M. C.; Lieut.-Col. H. French, R. A. M. C. (Temp.); J. A. Arkwright, Esq.; Sir W. M. Fletcher, K.B.E., F.R.S., and Lieut. A. F. Hird, Gen. List. (Temp.), Secretary.

fever and no symptoms of disordered action of the heart. It was not seen in these cases. To determine whether this slowing of the pulse bore any relationship to vagus activity, a number of patients showing it were given a dose of atropin sulphate, ⅓₃ grain. In each case atropin was found to abolish or greatly modify the effect of prolonged inspiration. The conclusion, therefore, that the phenomenon was definitely related to vagus activity became a difficult one to refute.

3. It was a matter of observation that a number of trench fever patients revealed cardiac irregularities during exacerbations of the disease, which irregularities disappeared in the intermissions.

A patient came under our observation suffering from acute trench fever, subsequently developed paratyphoid B, as proved by blood examinations, and finally relapsed twice with characteristic symptoms of trench fever, which symptoms had been conspicuously absent during the paratyphoid attack. During the initial trench fever his pulse tracings showed an extrasystole every third beat; throughout the paratyphoid fever no cardiac irregularity could be detected, though the attack was a severe one and the observations made were numerous, while with the trench fever relapses the extrasystoles returned as before.

Granted that a lowering of the sinus excitability, thus allowing stimuli to arise in other parts of the auricular wall, is a predisposing cause of this irregularity, it is manifest that vagus hyperexcitability would act toward this end. These three aspects when viewed in conjunction appear to us to offer at least a strong suggestion of a specific action on the vagus in trench fever. This view is strengthened when the tendency to a slow pulse rate in the acute cases, to fainting attacks and collapse is taken into consideration. Our observations, which are supported by those of the workers in France, show that the transition from bradycardia to tachycardia in trench fever cases usually takes place after the twenty-first day of the disease, and in the greater number of cases is found from the twenty-first to the fortieth day. Physical activity is not a necessary factor in the causation of disordered action of the heart, as many patients develop the condition while lying in bed. The impression exists, however, that allowing the patient up does increase the severity of this sequel. In an attempt to analyze the significance of the change in pulse rate certain coincident clinical phenomena were found to be of importance, as profuse sweating, flushing, headache, throbbing of the vessels of the neck, tremulousness, and in some cases discomfort in the throat and chest. These phenomena have been remarked by many observers, and have frequently been ascribed to hyperthyroidism. This view has been disputed, however, notably by Lewis, who found that the administration of thyroid extract by no means tended to exaggerate the symptoms of disordered action of the heart, a state of matters which he suggested might have been expected had hyperthyroidism been the basis of the syndrome. We ourselves, extending Lewis' work, have found in addition that far from exaggerating the symptoms, large doses of thyroid extract distinctly and definitely cause relief.

This finding has been confirmed in so many cases and with such uniformity that the beneficial effect of thyroid extract is not an accident.

The following are instances of what we mean:

CASE 1.—On the forty-sixth day of the disease, the patient developed marked sensations of exhaustion, shakiness, profuse sweating, and dyspnea on exertion. The pulse was rapid and presented the appearance of disordered action of the heart on the chart. He was then put on 2 grains of thyroid extract thrice daily, and immediately the symptoms disappeared. A week later the thyroid extract was discontinued, and the symptoms returned with a tendency to fainting, severe headache and giddiness. A further course of thyroid extract was begun, and all symptoms again disappeared. On the patient's again being taken off thyroid extract, the symptoms returned.

CASE 2.—On the thirtieth day of disease the patient developed profuse sweating, marked tremor, dizziness, headache and tachycardia. He was then put on 2 grains of thyroid extract three times a day, and at once got rid of his symptoms. Treatment in this case has not been discontinued, and the patient remains well.

This experience was encountered even in cases in which there was definite thyroid enlargement, as the following clearly demonstrates.

CASE 3.—Thyroid enlargement and discomfort in the neck accompanied the appearance of symptoms of disordered action of the heart. This patient could take 9 grains of thyroid extract daily without ill effect, indeed with comfort, for he improved steadily while taking it.

It must not be understood, however, that the results of our use of thyroid extract in cases of disordered action of the heart following trench fever have led us to the conclusion formulated by Lewis, that hyperthyroidism plays no part in the mechanism of this condition. The most striking feature of the majority of early cases of trench fever is the disinclination of the patient to respond to calls for effort. This disinclination is no local weakness of the legs, but a general extreme exhaustion accompanied by fainting in many cases and by bradycardia. At this point, as has already been suggested, the dilator mechanism is in a high state of excitability, and the patient is literally without the power to relieve himself of the depressing effect produced. Indeed, the falling pulse rate and occasional simultaneous gastric disturbances, with sweating or pallor, stamp the attacks unmistakably as vagal and dilator in origin.

After the subsidence of the acute phenomena, it is found that the vagus system of these patients is not less excitable than it was at the onset of the disease, but the response to effort has now improved — in other words, the man is now able, by means of some mechanism which is brought into play, to compensate for the activity of his vagus mechanism when an effort is required of him. A lead in the direction of the true nature of this compensation has been given to us by the fact that in some cases enlarged thyroids have been encountered and also by the appearance of phenomena usually associated with hyperthyroidsm.

These observations, coupled with the good effects of thyroid administration, have brought us to the conclusion that the so-called hyperthyroidism seen in these cases is in the nature of a compensation to the depressor effects of vagus hyperexcitability.

The work of Cannon, Cattell and Levy has demonstrated that the mechanism of pressor effects, as opposed to depressor, involves the suprarenals and the thyroid. Cannon and Cattell[6] have placed the secretory innervation of the thyroid on a firm basis. They showed that thyroid secretion resulted from stimulation of the cervical sympathetic nerve and also from suprarenal secretion, the latter through the blood stream. That is to say, at times of suprarenal activity a call will be made on the thyroid secretion.

It is well known that vagal stimulation with its resulting depression calls for suprarenal or sympa-

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6. Cannon, W. B., and Cattell, M.: Am. Jour. Physiol., 1916, 41, 39.

thetic activity. This fact is well established in the work of Roger,[7] who says:

> When, in a normal rabbit, we excite by a faradic current the peripheral end of the cut vagus, we observe a true stoppage of the heart, that is to say, a diastolic fall, sharp and profound, which is almost always followed by a return of the beats. The curve resulting is V-shaped. The first excitation always produces the most marked effect.
>
> If now we carry out the experiment on a decapsulated rabbit, the first tracing obtained looks like normal tracing; but during the second faradization, the stoppage of the heart is prolonged and the return of the beat is made with difficulty.
>
> Continuing our excitations, we soon obtain diastolic periods lasting as long as thirty or even forty seconds. . . .
>
> How are we to explain these differences? We might say generally that the vagus in the normal rabbit shows less and less effect in repeated stimulations because it is becoming exhausted. If this were the correct explanation we should find the same phenomenon in the decapsulated rabbit. But since in the decapsulated rabbit exactly the reverse is found, we are forced to take into consideration the only element that differs in the two series of experiments—the suprarenal capsules. We thus arrive at the following conception:
>
> When the action of the vagus becomes preponderant, when it acts, that is to say, with full force on the heart, a reaction probably in the nature of a reflex is produced on the suprarenal capsules which give out epinephrin. This epinephrin counterbalances the action of the vagus, prevents the stoppage of the heart, and raises the arterial pressure.
>
> This conception leads to the supposition that an injection of epinephrin given to a decapsulated rabbit would cause the heart of that animal to respond like the normal rabbit's heart. *That is exactly what happens.*

The work of Cannon and others already referred to shows that this reflex stimulation of the suprarenals involves thyroid activity. Consequently the normal reaction of a man to excessive excitability of his vagus system will be a mobilization of epinephrin and thyroid and so a reaction based on the sympathetic system.

Examination of our patients shows that the effect of the toxin is a more general one than a purely cardiac vagal effect. There is in addition a depressor effect, a circulatory effect, resulting in fainting attacks of definite depressor and vagal origin.

In other words, not only is the heart held in inhibition, but also the wide splanchnic blood lake is dilated and a severe fall of blood pressure, similar to that seen during stimulation of the depressor nerve results. This effect has been thus emphasized by Lewis[8] in describing a fainting attack observed in one of his patients:

> The simultaneous fall of pulse rate and blood pressure stamps the attacks as vagal in origin, a view fully confirmed by the occurrence of simultaneous gastric disturbances.

Epinephrin, as is well known, acts by constricting splanchnic arterioles and so closing the dilated splanchnic lake. A marked pressor effect results. Indeed, Hoskins has shown that the pressor effect of epinephrin depends entirely on the emptying of this blood lake since, if the splanchnic area is excluded from the circulation, epinephrin no longer is able to produce any pressor effect.

Levy has conclusively proved that the pressor effect of epinephrin is multiplied from 200 to 300 per cent. if thyroid is present, and he has further proved that thyroid has no effect whatever on the vagus. Consequently, it is evident that, as Levy has said, "thyroid secretion renders more excitable the sympathetic structure acted on by epinephrin in raising arterial pressure." It therefore follows that if the blood stream contains an excess of thyroid, less epinephrin will be required for any given pressor effect; or, in other words, the accelerator and other effects of epinephrin will be less evident in these cases, and effort will be accompanied by a smaller degree of tachycardia. We see in this the explanation of the slowing of the pulse we have encountered on thyroid administration.

THE DISEASE IN TRANSITION

We may now proceed to examine more closely the symptoms of the subacute and chronic disease, which symptoms, as we have pointed out, are progressive in character and subject to modification in their progress. Before doing so, however, we should like to insist on this fact of the modification of symptoms because, unless it is borne in mind, cases will be classified wrongly and those seen at one period will be regarded as differing from those seen at earlier or later periods; such differences are merely differences of degree. The disease, like most diseases, is a process rather than a fixed point. Each stage presents its own features. Each stage shades into the succeeding stage. When we speak of the chronic disease, disordered action of the heart, neurasthenia, etc., we by no means wish to imply that we believe the evil process is ended or that cure does not take place. The truth is that sufficient time has not yet elapsed to enable us to say whether the matter ends there, advances to some further phase of disability or gradually dissolves itself in cure. A proportion of cases certainly appear to establish a modus vivendi.

The subacute disease marks the passage from the acute to the chronic disease. The patient at the conclusion of the acute stage is in a condition of lassitude, the result, as we have suggested, of his active vagus. He is content to lie still without doing or thinking, and so remains unaware, in a physical sense, of his condition. During this period the pulse chart and temperature curve both tend to be subnormal. A little later the patient begins to enter once more on the affairs of life. He is now at once aware of the disability under which he labors, that is to say, of the disturbance in his nervous equilibrium occasioned by his hyperexcitable vagus system. In order to compensate for this, the opposing mechanism is called on to make greater efforts. There succeeds a period of rapid heart action, bouts of palpitation, and tendency to sharp relapses into weakness — a period that is of unstable nervous balance in which at one time so-called thyroid symptoms manifest themselves, at other times vagal symptoms.

Clearly, however, this stage is really a reaching out toward a new equilibrium, that is to say, a balance between the overexcited vagus and the sympathetic mechanism which is becoming overexcited also as a compensation. This new balance differs from the old balance of health in one momentous respect — it is a balance between extremes, and the daily swing of rest and activity is therefore greatly exaggerated. Activity becomes restless, nervous, violent; rest becomes heavy, somnolent, deep. The symptoms of so-called disordered action of the heart are produced, and the chronic stage has begun. This passage from the acute to the chronic stage shows four distinct phases: (1) the acute attack; (2) the period of rest following the attack; (3) the period of badly adjusted nervous balance, etc., and (4) the period of new adjustment of nervous balance — disordered action of the heart.

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[7] Roger: Quelques recherches récentes les functions de capsules suprarénales, Presse Med., 1916, 24, 513.

[8] Lewis: Report on Soldier's Heart to Medical Research Committee.

It is interesting to recall that in the course of a series of investigations into the nature of disordered action of the heart, Fraser and Wilson found that the response of the patients to epinephrin, the drug of the true sympathetic, was much exaggerated, while the response of the patients to apocodein, a drug which inhibits the true sympathetic, was also much exaggerated. This finding is in exact agreement with the expectations we might have entertained from our clinical study of the genesis of disordered action of the heart.

THE TEMPERATURE CURVE

The normal heat of the body depends on the amount of heat generated and the amount lost. There is a daily swing in health showing a low temperature in the early morning and a higher temperature in the late evening. That this swing is determined to some degree by the interrelationship of the pressor and depressor mechanisms is scarcely doubtful.

We should expect, therefore, that when the new equilibrium of our cases was established — what we call the chronic stage or stage of disordered action of the heart — the daily swing would be of a more exaggerated type in keeping with the exaggerated irritability of the nervous systems concerned in the new balance. This, in point of fact, we find, the daily swing amounting in most instances to 2 degrees Fahrenheit and often extending considerably above and below the normal line.

It must be realized, however, that a spiky relapse of fever often occurs during the chronic stage. In these cases nervous balance stands once more in need of a readjustment, the extent of which will depend on the extent of the disturbance produced in the vagal system.

THE CLINICAL PICTURE

In the later subacute stage of the disease the patient presents a well defined clinical picture. Throbbing headache is complained of, the face is flushed, the skin warm, profuse sweating occurs, marked tremor is present, and a sense of fulness in the upper chest is complained of. Sometimes constant nausea is felt, and faintness frequently occurs. The patients may faint, and often do so. When the chronic stage or stage of disordered action of the heart has been established, this extreme instability of the nervous system is less well marked. The patients no longer tend to swing from states of great excitement to states of complete collapse. Another and different clinical picture is seen. This clinical picture corresponds to the entity which has acquired the title of "neurasthenia," by some qualified with the words "of vasomotor type." No matter what name may be given to it, it will be found that there occur brisk reflexes, coldness and blueness of the extremities, irritability of temper, inability to fix the attention for long periods, and exhaustion, usually provoked by sustained effort, far in excess of that evoked by the same effort in healthy men. Breathlessness on exertion, palpitation, precordial pain and giddiness are features of both subacute and chronic conditions.

(To be continued)

PHYSICAL EXAMINATIONS UNDER THE SELECTIVE SERVICE

MEETINGS OF THE SECTION ON MISCELLANEOUS TOPICS, HELD IN THE STUDEBAKER THEATER, CHICAGO, JUNE 13 AND 14*

(Continued from page 35)

QUESTIONS AND ANSWERS CONCERNING DRAFT REGULATIONS, CONDUCTED BY COL. J. S. EASBY-SMITH

Thursday, June 13

Lieut.-Col. J. S. Easby-Smith said:

Question.—What disposition should be made of a registrant who has been suffering from diabetes mellitus?

My opinion is that he ought to be rejected. I think you will find that in the book, but if not, it seems to me you ought to know that a man who has diabetes mellitus will never be fit for general military service.

Question.—Are these rules to be applied to all men of draft age, or only to those who have to be examined hereafter?

Recently the Provost Marshal-General issued a request to boards, through the governors, to go over and recomb their classification lists in order to correct cases that have been improperly classified, because we realize that some have been improperly classified without deliberate fault of the boards. Boards ought also to comb their lists over as to physical groupings. Section 177 provides that when a man is rejected at camp, he shall be reclassified by the Local Board in accordance with the findings of the camp authorities.

In the new Manual you will find short explanatory notes to Section 177, the gist of which is as follows: We are going to try to get the Surgeon-General to issue an instruction which will be followed by camp surgeons, so that when they reject a man and send back Form 1029-A or B, or whatever it is, they will state specifically the physical cause of rejection, if the rejection is due to physical cause.

And then there is another case in which I believe we will get cooperation through the Surgeon-General or Adjutant-General, when the camp surgeon will again put it into the record. Now, suppose the camp surgeon has rejected that man because he finds him suffering with some defect which unfits him for any sort of military service. Put him in Class 5. If he is rejected on account of some defect, he might leave him still in the deferred remediable group, or in Class C for special and limited military service. Put him in that. If you have any doubt about it, examine him over again, and group him; and then bear this in mind: You know the Local Board and the District Board have the authority to reopen, reclassify or reexamine cases at any time they choose. They cannot be compelled to do so. It is absolutely discretionary. You may have a man who is a malingerer. He may come in with some sort of a fixed up case, and it may appear to be from some source that is not what it appears to be. There are a great many rejected. On subsequently learning that he is in good shape, and is working, call him in and examine him and regroup him.

Question.—Has the Advisory Board the same power as Local and District Appeal Boards?

Let me say that the Medical Advisory Board has no power except as the name indicates, to advise. The law puts the decision of these matters in the Local Board, subject to appeal and review by the District Board. The Medical Advisory Board makes the examination for the benefit of the Local and District Boards, so that the Local and District Boards may exercise their discretion and judgment on the advice received from the Medical Advisory Board. If the Advisory Board thinks a man ought to be called in and reexamined by the Local Board, and so recommends, I think the Local Board would be very derelict in its duty if it did not comply with the request. You can reexamine and reclassify this man according to Section 177.

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* Because of lack of space some of the questions and answers rather special or non-medical in nature have been omitted from The Journal but will be included in the reprints. Reprints will be sent by The Journal on receipt of six cents in stamps.

Question.—Mr. T. H. McKellar, Los Angeles, asked: Why should we not accept for limited service a man with one leg, or a man with one arm, because under the construction that was put on it for that individual, if he were able to do an honest day's work in a successful and skilful manner, earning his living without losing any time more than a man ordinarily in his vocation, and receiving full pay, or if he were a skilful man earning from $5 to $10 a day in a munitions factory, that man was qualified for special and limited service under the orders sent out. Is there no place in the limited military service for a man like this?

Lieut.-Col. J. S. Easby-Smith answered: I can only say this: That the Surgeon-General, bearing in mind the old Army regulations, has provided these standards for physical acceptance or rejection. I am not prepared to argue whether or not a man with one leg or one arm ought to be held for special or limited military service. That is for the Surgeon-General and the medical authorities of the Army to settle. I will say that the only way to get uniformity is to adopt a standard rule, so that there will be uniform action on the part of the boards and the camp surgeons as to rejections and acceptances, and if the boards will live up to them, and the camp surgeons will live up to them, there will be few men for whom the government will have to pay double transportation.

Question.—Is a man of the age of 61 over the age for original entry into the Medical Reserve Corps?

I think he is not eligible.

Question.—In what occupations may men be held for special and limited service in the Army?

A good many of these questions are answered practically in the questionnaire for the new 21 year old men recently registered. It will be slightly different from the old questionnaire, because in it the additional questions occur as to the divinity and medical students. Hereafter not only men who are divinity students but also medical students at that time will be entitled to absolute exception. We have taken out page 4, reduced the number of questions, and inserted a removable slip which is to be put in, a temporary slip, which contains a list of about 400 occupations needed in the Army.

Question.—How about having the defect of registrant removed.

You cannot compel a registrant before being inducted into the Army to submit to having his defect remedied. You can compel him to submit to an examination, but you cannot compel him to submit to an operation to be remedied.

Question.—What about reclassification after physical defects have been removed by an operation?

If the operation is successful, the registrant can be reclassified. It may take two or three months before he is physically fit again, but if he is, he can go right into Group A, and is physically fit for general military service.

Question.—Can a malingerer be sent to a hospital for observation, and can he be compelled to stay at such a place?

I think that this may be done whenever a board decides that it is necessary, in order to secure a complete examination of a registrant and get the truth about him, that he be sent to a hospital and remain several days under observation. Of course, you could not compel him to pay the expense, but I should say you had a perfect right to compel him to submit to any reasonable examination.

Question.—Could we compel a registrant, irrespective of his social condition, to go into the Cook County Hospital, a charitable institution?

I will say that if Cook County Hospital is willing to hold him for observation, I think you can compel him to go there. I think the only limitation that would be applied would be as to whether or not it was reasonable, and whether or not it was reasonably necessary to hold the man under observation in order to ascertain his real physical qualifications.

Question.—Do we differentiate between congenital flatfoot and broken arch?

Major Hubert Work answered: The term "flatfoot" bears particular reference to the flexibility and weight-bearing power of the foot, and not to the height of the arch.

Adjourned until 8:30 a. m., Friday, June 14.

Friday, June 14

Question.—Are dental students placed on the same status as medical students under the recent law?

This recent law registering the new 21-year-old men provides that any registrants who were medical students, recognized medical students preparing for the practice of medicine and surgery, shall be exempted, that is, those who had that status at the time the new law was passed. In a sense, the practice of dentistry is the practice of surgery. I do not know whether that question has been put up to the Surgeon-General's Office. I am sure that it has not been put up to our office yet, as to whether or not dental students are to be exempted, as well as medical students, and I should not like to express anything like an official opinion, because the question has not really been put up to the proper authority. My present view of the matter, however, is that, taking into consideration what the past law requires, dental students are not included in the provisions that apply to medical students proper, who are medical students in medical schools preparing for the practice of medicine and surgery. I do not believe that the dentist complies with all of the terms of that distinction.

Question.—Does the Provost Marshal-General advise Local Board medical members to go into regular service?

We have no authority to advise one way or the other. The attitude of the Provost Marshal-General's Office is this: If the Surgeon-General says that he needs more medical men in the Army, he ought to be able to get them; but if there is a community—and there are numerous communities in the United States, because the question has been put up to us frequently—that cannot spare the medical member of its board, because there is no other medical man available, I should say in that case that the man's first duty is to stay with the board, because without him the proper physical examinations, an essential part of the examination of a registrant, cannot be conducted, and there cannot be any real physical examination. In other cases this is a question for the member to decide for himself; but we have repeatedly authorized the governors to accept the resignations of local board members in order that they may accept commissions in the Medical Reserve Corps of the Army. That expresses our attitude; and it is only in the cases in which there is no other medical man to take his place that we feel he ought not to leave.

Question.—Suppose a man is inducted into service as physically fit, and at camp a defect, hernia, for example, is found; does he have to submit to an operation in camp or is he returned home?

If the camp has facilities for performing the operation, and the division surgeon feels that by undergoing the operation the man can soon be made fit for service, he will have to submit to the operation. If there are not facilities at camp for remedying that defect, or if, in the opinion of the camp surgeon, the operation would be such that the man would be laid up two or three or six months before he is really fit for active military service, it is for the division surgeon to say whether he will be operated on or sent back home. The law on the subject is, or one of the articles of war that govern the man after he is inducted into the service is, I think, that he must submit to any operation that is not "capital." Now, what is a capital operation and what is not a capital operation is, as you know, rather a debatable question.

Question.—Is it desired that a medical advisory board ever render a report more complete than is called for in the blank provided for questions and answers?

I should say yes; that if in the examination of a man something develops, and there is no space or room on Form 1010 for the recording of it, it should be recorded on a separate sheet and attached to the form; because the more information one has about a man, the more intelligently his case can be acted upon.

Dr. White: Do you make three copies?

Colonel Easby-Smith: Yes, make an original and two copies, two carbon copies, and attach them.

Question.—Dr. Ralph C. Matson, division tuberculosis specialist, Ninety-First Division, Camp Lewis, Wis., asks, "What provisions have been made to prevent the return of tuberculosis patients rejected at camp, when the local or medical advisory boards think no tuberculosis exists?

I have explained already that under Section 177 of the regulations, when a man is rejected at camp he has to be reclassified by the local board in accordance with the finding of the camp officials. Now, since that section was written, these new regulations were issued, and in order to make that clear, so that it can be applied in the light of the new physical examination regulations, we put four important notes under Section 177, where it is printed on page 65 of the new standards. Of course, these standards consist, as you know, of the medical regulations proper; and there has been added as an appendix the essential parts of the selective service regulations relating to matters of procedure, in order that everybody may have them in handy form, the essential parts of the regulations governing the procedure.

Section 177 provides as follows:

When any selected man is rejected at a military camp or station, the commanding officer thereof will promptly notify his local board of the fact, specific cause and date of rejection, using Form 1029-A, and the Provost Marshal-General using Form 1029-B. When any selected man is, subsequent to acceptance, discharged at a military camp or station, the commanding officer thereof shall similarly notify the local board (Form 1029-C) and the Provost Marshal-General (Form 1029-D).

If the rejection or discharge is on account of the fact that the registrant is an alien, or an alien enemy, or upon the request of the accredited diplomatic representative of the country of which the registrant is a citizen, or that he is physically disqualified for general military service, the local board shall place the registrant forthwith in Class 5. If the discharge or rejection is on account of dependency or any other cause for deferred classification prescribed by these regulations, the local board shall proceed to reclassify the registrant in accordance with his status, as determined by the action of the military authorities in discharging him.

Now, that may need a little explanation. You will notice that that recognizes the possibility of a man's being rejected at camp, not only on account of physical disqualifications, but, having been accepted at camp, discharged on one ground or another apart from the question of physical qualification. The power to discharge any man from the Army, whether he be an enlisted man or a drafted man, is plenary in the President of the United States. He can discharge from the Army any man that he chooses. That function is exercised through the Adjutant-General, but practically it is exercised through camp commanders. So that sometimes a man has been accepted at camp and becomes a soldier; but an application is made for his discharge from the Army on the ground of dependency, or on the ground of necessary industrial occupation, or some other ground or because he is an alien enemy; or because—and we have had a great deal of trouble of this sort—we have had treaties with some country, for example, Switzerland, in which we agree that we will never put into our Army any of their citizens.

Application may be made to the Adjutant-General that a man be discharged on account of dependency. Earlier in the game there was a good deal of abuse—and I use the word not as reflecting on the camp officials—but there was a good deal of abuse in the authority of the camp commander to recommend the discharge of a man. In other words, the local board, or the district board may have passed on this very question of dependency, looked into it carefully, and found out that the man's claim was not established, and held him for service and sent him to camp. Sometimes he would go to camp and make an application, and some of these associations who are doing good work, but who sometimes are carried by their sympathies beyond what they ought to do, urged the camp commanders, through their associations, to discharge the man, saying, "This poor fellow has a wife and three children that are starving to death"; and the camp authorities will recommend his discharge to the Adjutant-General and he will be discharged; and ninety-nine times out of a hundred he ought not to be discharged. In some cases we found that a man had abandoned his wife and children and left them for two years, and yet he induced some of these associations to come in and beg for him, and they discharged him.

That is being corrected largely, because those abuses have been called to the attention of the camp commanders, and the general rule is now that before a camp commander will recommend the discharge from the Army of any man, they will refer that case back to the Local or District Board for recommendation. So that, while there is the absolute power to discharge from the Army, it is going to be exercised on the discretion of the Local and District Board. In other words, reclassify the man according to the grounds found by the camp authorities.

When it comes down to the matter of rejection for physical qualifications: when this section was written, we only examined men and divided them into two classes, those fit for military service and those unfit for military service. Now, we have the four groups; so that these notes in fine print on page 65 explain and amplify this Section 177 as follows:

Note 1. Section 177 is necessarily modified by the new grouping, also by new standards of physical examination, and should be applied in connection with Sections 116, 117, 118 and 120, of the Selective Service Regulations.

These particular regulations are the regulations authorizing boards to reexamine a man at any time, when the board thinks a man ought to be reexamined, whether reexamined as to his availability for duty, or reexamined on any claim that he may have for deferred classification; and it also covers the reexamination of a man physically, because, you know a man's physical status may change as well as his other status. And those sections give unlimited authority in discretion to Local Boards to reopen and reexamine a man's case.

Note 2. When the form 1029-C shows that the reason for the discharge of the registrant was physical disqualifications, which, under the new physical examination requirements, unfit him for any military service, the Local Board, under Section 177, shall place the registrant forthwith in Class V.

Now, having done that, there is nothing to prevent the board in the future, if it thinks that man may have recovered, to call him up for reexamination, and if they find him cured of that defect, reclassify him or regroup him.

Note 3. Where Form 1029-C shows grounds for discharge to be physical disqualification for general military service, but defects which might place him in the deferred remediable group, or leave him fit for special or limited military service, the Local Board should proceed to reclassify the registrant in accordance therewith, and if he is placed in Class 1, the board should proceed to examine the registrant under the new standards of physical examination and to classify such registrants in accordance with such physical examination.

Note 4. Local Boards are authorized under Sections 116, 117, 118 and 120, on their own motion, to reclassify registrants. Local Boards should keep advised with respect to any change in the physical conditions of discharged registrants which removes the physical disability, and have full authority if a change of status of this nature occurs, to reclassify the registrant, placing him in Class I, and order that he be reexamined.

That note will answer thousands of questions that we have had which have naturally arisen on account of the new standards.

DR. OWEN: It reads, "Exempt from further military service." Now, can we touch those men again, whom we have discharged?

COLONEL EASBY-SMITH: When were they discharged?

DR. OWEN: Last fall.

COLONEL EASBY-SMITH: Yes, sir. They should be reexamined under the new regulations, as if they had never been to camp at all. This Section 177 relates only to registrants or drafted men who are rejected from camp after Dec. 15, 1917. A man discharged from camp prior to Dec. 15, 1917, should be reexamined, and the Local Boards have the right, as we have seen, to reexamine the men who are now discharged; but the medical aides and the members of boards ought to be extremely careful to see that a man is not sent back to camp.

Question.—DR. MATSON, division tuberculosis specialist, Ninety-First Division, Camp Lewis, Wis., asks: If a board sends a registrant to camp as phyically fit, and the examining surgeon and the authorities at the camp decide that the man is suffering with tuberculosis and rejects him and sends him back, what is the action of the Local Board?

The Local Board ought not to be stubborn, and in fact it would be violating the regulations, if it should insist on its decision being followed, and turned around and sent that man back to camp, because he is going to be thrown out again as soon as he gets back there. Of course, there may be a case in which a man has had incipient tuberculosis, he may have shown the germ in his sputum, and be rejected at camp, and later it may clear up. In that case it is for the board to exercise its authority of reexamining that man, and if it is perfectly sure that he has recovered, there is no reason why he should not be sent back; but a board ought not to send a man back to camp because it does not find the particular physical defect that the camp surgeons say they have found; because it is for the camp surgeons to say whether or not they will take him into the Army as physically fit.

Question.—A young man, aged 20, enlisted in the Navy; he was there a few months and came home; he says he was discharged because he carried meningitis germs in his throat. He registered, June 5, 1918. He has lived in a town of 5,000 all his life. No cases of meningitis resulted from him, either before he went to the Navy or after his return. Local and Medical Advisory Boards are not prepared to make cultures of the throat. Shall he be rejected on his word that he is a germ carrier or be sent to camp? He is otherwise physically fit.

First, you should not take the word of any man that he is a germ carrier. If you take a man's word for that, and do not have the facilities to take cultures, why, you probably would have to let a good many hundred thousand men out. I should say, however, that when a board is put on any sort of notice that a man possibly is a meningitis carrier, he ought to be given the most careful examination, because that is one of the worst diseases that can be taken into camp. I am surprised that the Medical Advisory Board is not prepared to make cultures. I would send him to another Medical Advisory Board, and certainly some man on the Medical Advisory Board is qualified to take a specimen and send it to a hospital or have it cultivated and examined; and I should say there is nothing in this case at all to take it out of the ordinary case. The fact that he was in the Navy has nothing to do with examining him now; but, having been put on notice that he is possibly a meningitis carrier, the board ought to exercise great care in ascertaining whether he is or not.

Question.—Dr. Johnston, Wyoming, asks: What is the status of Filipinos in this country?

Their status is that of aliens. A Filipino is not a citizen, unless he has become naturalized. If a Filipino is residing in this country at the time of registration, he is obliged to register as every other man of draft age. If he has declared his intention to become an American citizen, he is liable to draft as any other declarant. If he has not declared his intention, he is entitled to claim exemption as an alien, and it must be granted to him, unless he waives it. In other words, the draft law is not applicable in the Philippines at all; and, if a Filipino is here, he is treated as an alien, just like our Indians. We have two classes of Indians, the citizen Indian and the noncitizen Indian. The citizen Indian is liable to military duty and liable to all the provisions of the selective service law; the noncitizen Indian occupies the same status as an alien, and cannot be drafted, unless he waives.

Question.—What is meant by "for insular troops?"

We do not know whether or not our drafted men are to be used outside the Hawaiian Islands. Recently the Provost Marshal-General gave us authority to waive all height and weight standards in the case of Orientals otherwise fit for full military duty.

I should say further, answering that, that this new regulation extended to all men raised in Hawaii and Porto Rico; that is, that the height and weight minimums are practically waived for men raised in the two islands Hawaii and Porto Rico.

I have not any authority to state officially what is going to be done with the troops raised in the two islands. I know that the policy has been—although it may be changed at any minute—to raise troops in those two islands, and to let them remain on duty in the islands, taking the place of the regulars who are there, so that the regulars can be called and go into service, and go overseas; and the troops who are drafted in the two islands shall stay at home taking their places. It may be that the policy will be changed and the Hawaiian troops and the Porto Rican troops put into the same service as the troops that are raised elsewhere; but I should say that the proper interpretation of this, that the height and weight minimums are waived, applies as to men drafted in either Hawaii or Porto Rico.

Question.—Under instructions, Form 75, will local boards classify in Groups B and C without recommendation of Medical Advisory Boards?

They can in clear cases. When they are doubtful they ought to send them to the Medical Advisory Boards.

Question.—When will old instructions be recalled?

We began last Monday the shipping out and distribution of the new instructions. We shipped 25,000 on Monday to the far western states, because we always begin to ship to the more distant points first, and by this time Form 75 will have been shipped to every state headquarters in the United States, and to the territories, and the distribution has probably begun already. We have given positive instructions to the Adjutant-Generals for transmittal to boards immediately on receipt of Form 75, and that old Form 64 shall be totally destroyed; not merely abandoned, but absolutely destroyed. These instructions will go into effect on their receipt, and they are being given to the camp commanders and the Adjutant-General, so that they will go into effect at the camps at the same time.

I would not examine those men that are going now, under these regulations, because the camp surgeons have not received them yet. I doubt whether your board has received them. That is another case for judgment. When you do get these new regulations and read them over, if you happen to know of some man that you ought not to have held for general military service, you ought to reexamine him and regroup him under the new regulations.

As I said this morning to the medical aides, we could write reams and reams of regulations that could cover thousands of pages, and it is beyond the range of human possibility to provide for every question that is going to arise in the application of a law like this, that has such widespread application. There is only one thing to do, and that is to give men an outline of a course of procedure to follow. Appoint the right men to do the job, point out the objective to them, and let them go to that objective, using their good horse sense and sound judgment, following the general regulations that have been compiled. That has been done by the boards of this country; and I do not hesitate to say that if there is one single thing that has reached a greater state of perfection in its administration than anything else since war was declared, it is the administration of this Selective Service Law. This is due, not so much to our office as to you men in the field who have been administering the law and applying these regulations.

Question.—Dr. Brown, Milwaukee, said: The difficulty is that while these boards have been doing yeoman service, they find themselves confronted with men returned to them from the camp, reported back with hernias that they have not, and never did have, and where the services of elderly men in the medical profession is made as nothing by some young chap in camp who wears a uniform and decides absolutely against the facts in regard to some cases.

Unfortunately, that is one of the difficulties we have had. The trouble has been in the past largely on account of the fact that the camp surgeons were acting under one set of instructions and the boards under another. But there is no excuse for the cases you mention, when a man is rejected on account of hernia, and it is a matter of physical demonstration that he has not hernia. Now, the thing to do in those cases is to put it up to the medical aide, and let him take it up with the camp surgeon or the division surgeon and say, "Here is a man sent back, rejected at camp, of whom they say he has hernia, and here is a physical demonstration that he has not." Put it up to him. Is it crookedness or incompetence? If it is crookedness root out the rotten spot; if it is incompetence, put some one there that is competent. I think in this way, more than in anything else, the medical aides henceforward can be effective by being the go-between, or the means of communication between the boards and the camps, so that these abuses can be pointed out on both sides. Boards commit errors, and camp surgeons commit errors. Now, let us all bend our efforts toward correcting these errors and reducing them to a minimum. I think that if this meeting will accomplish a small percentage of this, it will be worth while.

Question.—Dr. Throckmorton asks: Which examination shall stand, if a registrant is examined by a Local Board and pronounced fit for service, and he goes to the Medical Advisory Board and receives a recommendation for exemption, that he is unqualified; which examination shall stand?

I can answer that this way: The Medical Advisory Board has no right to determine the physical qualifications of a registrant. Only two bodies have that; in the first instance the Local Board, and in the second instance, if the man takes an appeal, the District Board. I am not talking about what happens when he gets to camp. The Advisory Board is what the name indicates; it is to advise the Local Board.

If I was on a board and the physician member of the board reported that he had examined a man and found him physically fit, and the man went to the Medical Advisory Board, composed of a number of physicians and they sent him back to the Local Board with their report saying, "We found so and so, etc.," I should be much inclined to take the opinion of several men who find something that the first man simply failed to find, rather than to take the opinion of the one man. It reduces itself, however, after all, to the exercise of common sense and good judgment.

Question.—Dr. Throckmorton asked: Can the man examined go alone, without the recommendation of the board?

The man can go to the Medical Advisory Board in two ways: first, if he is not satisfied; supposing he is examined and the physician of the Local Board tells him, "You are physically fit," and he says, "I am not satisfied." Then he has the right to go to the Medical Advisory Board. He has to pay his own expenses, take his case to the Medical Advisory Board, and the Medical Advisory Board reports back to you. You are not bound by that.

Question.—Dr. Throckmorton asked: In that case the local physician certifies on his examination paper for him to go there, or is he going on his own responsibility?

The only difference is that he can be sent by the Local Board if it is in doubt, and there the government pays his expenses. If the Local Board is not in doubt; if the Local Board by a vote of 2 to 1 has held that man for service, or rejected him, then he has to take the appeal himself, or rather he has to go there of his own accord and pay his own expenses.

Question.—Give the rule that allows a Local Board to reopen cases.

If you will refer to the Selective Service Regulations themselves, and to the index of the various sections, you will find that the Local and District Boards have absolute and unlimited discretionary power to reopen cases whenever they choose; and their action in reopening or refusing to reopen a case is not appealable. Their action is final.

Question.—Is it necessary for the oculist to examine a man sent up for hernia?

I should say when a man is sent up by the Local Board, and Form 1010 says that his eyes have been examined before, and that his eyes show 20/20 in the left and 10/20 in the right eye, or whatever it is, there is no reason why the oculist should duplicate that work, when he is sent up there simply to have one question determined concerning which the Local Board is in doubt.

Question.—Dr. L. Bloch asked: In the case of a man sent up from the Local Board, is it necessary to go through a complete examination at the head, and taking every part of him, after the Advisory Board has examined him? When some defect is found that disqualifies him, is it necessary to examine him further?

The new regulations are very much simpler in a great many instances than the old regulations, and a good many of the inconsistencies of the old regulations have been eliminated. In the first place, it would be perfectly useless for either the Local or Medical Advisory Board to go through the entire examination of a man after it had found a decided defect which would totally disqualify him for military service. It is simply a loss of work. So that either board, when it finds a defect which totally disqualifies a man, should go no further. Now, then, in the case of men who were sent up to the Medical Advisory Board, I should say that the character and the extent of the examination depends entirely on the man's examination as indicated on Form 1010, and also concerning the particular question of doubt which is referred up to the board. And even in that case, in some cases it is undoubtedly necessary to go over the man and make a complete examination of him. In other cases, I should say that the examination might be very limited. That is a matter for the sound discretion of the board, which it has to determine in each case. You cannot make a hard and fast rule that will govern every class of cases.

Question.—Dr. Brown, Milwaukee, asked: It has been found in many instances in the Advisory Boards that men coming from the Local Boards have eye defects not discovered in the Local Boards. If the men on the Advisory Boards do not make an examination of the eyes, how are those faults in vision not found by the Local Board to be discovered?

We are going to have mistakes made, and in some cases men on the Local Boards not doing their duty; but the regulations suppose that men will do their duty. If a man on the Local Board has missed something, and he actually marks down a man's vision as normal, I think the Medical Advisory Board can assume that he has made the examination and found what he reports. If the Medical Advisory Board finds that the Local Boards are sending men up with false reports on Form 1010 they ought to take some action to see that it is corrected. But I should say that if Form 1010 comes in blank as to the examination of the eye, you ought to examine the eyes. If Form 1010 says that a man's eyes are 20/20 and there is nothing that would call your attention to any defect, I see no reason why the Medical Advisory Board should pay any attention to his eyesight. But if Form 1010, as it comes up, shows that there is probably a defect, or if an ocular infection shows that there is some defect, I should say that it was the duty of the Advisory Board to look into his eyes.

Question.—Is it not a good safe plan, and the proper thing, for every Local Board to have an oculist on it to examine men for their eyes? I have been calling in an oculist to examine men whom I would certainly have passed, and they have been found to have defective eyes, and they would have been passed but for the work of the oculist. It is very satisfactory, and we do not let anybody get by us in that way.

We have encouraged that all we could. We have encouraged the Local Boards to ask the dentists to come in and help them to examine the men's teeth; and to have the various specialists, and the oculists and so on, come in. We sent out special instructions not long ago recommending that Local Boards should take advantage of the assistance of dentists in examining the men's teeth.

Question.—Does this order "Work or Fight" apply only to Class 1, or to all classes?

It applies to Classes 1, 2, 3 and 4, but not to Class 5. It applies to Class 1 in this way; Suppose a man has a very low order number, and he is away down at the bottom of the list, and he is a loafer. Under that the Local Board has the authority to cancel his order number and put him right at the head of the list, and send him right to camp. That is the way it applies to Class 1.

Now, as to Classes 2, 3 and 4: It can transfer a man from any one of those classes into Class 1 and send him along with his order number, and also revoke his order number if he has a low order number. It does not apply to Class 5, because that is made up of men who are compelled practically to be exempted by the terms of the law; but it does apply to Classes 2, 3 and 4, as well as Class 1.

Question.—Can a man be transferred from Class 4 to Class 1, without being taken back to the District Board?

If you will read the new work or fight regulations, you will find that they will cover it. If a man has a wife and two children, is slinging dishes in a restaurant, and would rather do that than some more productive occupation, you can put him in Class 1, and the law compels him to send his wife $15 a month. The government will add $35 a month, and that wife and child will get $50 a month, and you say to him, "Get into the Army." If before it goes into effect he abandons the slinging of dishes and takes up something more effective, something which an older man or woman cannot do, then all right; leave him where he is.

Question.—Dr. P. R. Badger, Local Board, Kankakee, Ill., asks: Does not the government realize the necessity of sending an Army officer with drafted men from the place of entrainment to the cantonment, in order to maintain proper conduct?

Of course, the regulations provide, as you know, that there should be a leader accompanying them, and the regulations further provide that if the members of the board feel that on account of the size of the party, and on account of danger of disturbances that some one should go with them, they may apply to the company commander to send military police to help them out.

We wrote a lengthy and full recommendation to the Adjutant-General, asking him that the regulations be put into effect whereby the camp commanders would instantly, on the request of the Adjutant-General of the state, furnish such military police as an escort as might be necessary, so that when the Local Board feels that it needs some sort of escort, it can telegraph to the Adjutant-General, who can ask the camp commander to furnish it. I hope there will be some permanent regulation in that matter, because undoubtedly there is need for it. But I would simply say to boards now that under the regulations as they exist you have the authority, when you feel it is necessary, to send along people to preserve order.

Question.—Should a man with one eye enucleated be sent in limited service?

I think the new regulations say that a man who is totally blind in one eye, but his sight is normal in the other, can be put in special military service. Nonprofessionally I cannot see the difference between a man who has one eye cut out, and a glass eye in there, with the sight in the other eye perfect, and the man who has simply lost the sight of one eye. Major Work, what do you say about a man whose vision is totally destroyed in one eye, but who has good vision in the other eye, and can be held for special limited military service; now, suppose he has actually lost the eyeball and has a glass eye. Is there any difference in those cases?

Major Work: He is blind in the eye just the same, but has one good eye. The eye is lost, whether the ball is lost or not; that is immaterial. It is the vision we are interested in.

Question.—Lieutenant Dobson, Mississippi, asks: What recommendation shall the medical aide make in cases in which the examining physician on the Local Board lives distant from the headquarters of the board, thereby impairing the efficiency of the Local Board?

I should say that I would try to get a nearby physician, a man who is more available, and suggest to the governor that he recommend the substitution. The President makes the appointment, but we almost invariably follow the recommendation of the governor. I would recommend to the governor that this man be asked to resign, and that a nearby and more available man be appointed, if there is one.

Question.—Dr. D. Chester Brown asks: From statement it appears that all medical aides do not give all their time. Are they expected to?

They are expected to give all the time that may be necessary to perform the duties which have been placed on them when they accepted commissions. They have been sworn into the Army, and they are expected to devote their entire time to the work, if all their time is necessary to the proper performance of the duties assigned to them.

Question.—What shall we do with men who are physically fit for limited military service only, who are not specially capable for any special work, such as common laborers or farm workers?

The only thing you can do in that case is to find them fit for special limited military service, in whatever capacity you find that they are fit to work in.

Question.—Dr. Herrick, Chicago, asks: Can the Local Board deny to the registrant an examination by the Medical Advisory Board when he makes application in proper manner and at the proper time?

I should say that any Local Board would not be obeying the regulations, if it refused to send a man to a Medical Advisory Board, if he properly requested.

Question.—Even though the Local Board unanimously decides there is no reasonable doubt as to a man's fitness, does not such denial of the right of a second examination violate the spirit of the law?

Yes. And there has been some confusion on account of what are apparently inconsistent statements in, I think, Sections 122, 123 and 124. I should say that, notwithstanding the Local Board unanimously decides that a man is fit for military service, and that he has no defect, if he has made a request in due season to be sent to the Medical Advisory Board, he has the right to be sent there, and the Local Board ought to send him; and if the boards are acting to the contrary, they are acting in violation of the regulations.

Dr. Herrick: I asked that question, because some of the Local Boards have sent to the District Boards, on appeal made by the registrant, cases in which they had refused the registrant the right to appeal to the Medical Advisory Board. I note that you explain there that there is a little confusion in the wording of Section 123, and that explains it all. It clearly seems to me that the intent of the Selective Service Law is to give the man an opportunity of going before the Medical Advisory Board.

Colonel Easby-Smith: Absolutely, if he wants to, the Local Board has no right to deny it.

Dr. Herrick: And it is assumed in Section 126, in the note, that the registrant appealing the result of his examination has already been twice examined.

Colonel Easby-Smith: Yes. It is clearly the intent of the regulations to give the registrant an absolute right to go before the Medical Advisory Board if he wants to; and I hope that the medical aides will take all means to correct the erroneous application of the regulations, wherever they find it exists, and if they find it to take the situation up and report the matter to the Adjutant-General, so that he may issue instructions to the board, requiring it to live up to the regulations. That question no doubt arises in reading Section 123, or 124, or whatever it is, and you will observe that it really is directed to one class of cases, the doubtful cases, and does not apply to the preceding section, which gives the man the right to go up.

Question.—On what grounds can a member of a Local Board be excused from further duties?

It is almost impossible to answer that question. We feel that all boards have practically been drafted for the service, and should continue to perform their duty as long as they can do it without an undue sacrifice or without undue hardship; but if the time comes when a member of a Local Board feels that he cannot, in justice to himself or his family, continue to give all the time that is necessary, and somebody else in the community ought to do the work, why, put the matter up to the governor, so that the governor will recommend to the President that his resignation be accepted.

Dr. Hockman: Supposing he is ill?

Colonel Easby-Smith: If a man is ill, he ought to resign and inform the governor that he cannot proceed further with the work on account of illness; in which case I have no doubt that the governor would send a recommendation to appoint a successor.

Question.—Dr. H. L. Adams, Grundy Center, Iowa, asks: How about a Chinaman born in this country? Is he to be taken for military service?

Yes. A Chinaman born in this country is a citizen of the United States. He is liable to military service. Of course, we do not naturalize Chinamen, so that they are aliens; but Chinamen and Japanese, or persons of any other nationality born here are citizens.

Question.—Please discuss the dependency of physicians in the draft age: Are we to consider the possibility of their salary, if they are enlisted in the Medical Reserve Corps, or are we to consider only the $30 a month of the man in the regular service?

You mean the case of a physician in the draft age who is a registrant and who has dependents. No, you are considering his case not from the standpoint of a man that is to be commissioned in the Medical Reserve Corps; you are considering him as a man, a drafted man who will get $30 a month, and that the government will allow $15, and add to it $15 for the wife. You cannot consider the probability that a medical man who is drafted is going to get a commission. I think you would have to treat him as you would any other registrant, from that standpoint.

Question.—I had a question that came up before our board, the case of a man in the draft who had applied previously for a commission in the Medical Reserve Corps. He was rejected owing to defective vision. I simply marked him disqualified on account of his having been rejected in the Medical Reserve Corps.

You were wrong for the reason that in examining men for commissions in the Army the regulations look for a man practically 100 per cent perfect. The old regulations under which voluntary enlistments were made in the Regular Army, and so forth, under which they were examined, looked for men practically perfect, and the fact that a man, on examination, was rejected for a commission does not mean at all that he would not come well within the standards for acceptance into the Army as an enlisted man or a drafted man.

Take a man who passed the examination for a commission: He is put through a very stringent color blind test. As I understand it, in enlisting a man, and in drafting a man into camp, his vision is examined, but not for color blindness. Now, a man might be perfect physically and have good vision, and he might be color blind. On the other hand, there might be some other little defect which a man would have which would cause him to be rejected for a commission, but which would not have any effect on his qualifications as a drafted man. I do not think, therefore, that a board ought to pay the slightest attention to the fact that a man has been rejected either for enlistment or for a commission, when he has tried to get a commission and tried for voluntary enlistment in some branch of the service and has been rejected because of the different standards which are applied; and those different standards will continue to be applied, so far as the physical examination of officers is concerned.

Question.—How long a time has a man to accept a commission? What is the result if he does not accept? Can he resign?

If a man is offered a commission, he does not become a commissioned officer until he does two things: formally and in writing accept a commission and then take the oath of office. The President might send to the Adjutant-General the commission, but you are not a commissioned officer until you accept and take the oath of office. Whether the appointment is revoked for failure to accept within a certain time I do not know. That is a matter of regulation for the Adjutant-General.

Dr. Coburn: Is the certified commission issued prior to the time of the oath, or afterward?

Colonel Easby-Smith: Frequently the commission is issued, but it does not become effective, and a man does not acquire military status until he accepts it and actually takes the oath. I have known of a commission's being issued, and the man's taking the oath and accepting it several months later. Of course his entry into the service dates from the time of the oath of office, not from the date of the commission.

Question.—Could not the department get out a chart of physical standards, etc., similar to the one published by California?

I am glad that question was asked, because I intended to state that Major Work is now preparing a chart which can be issued, and which has been found of great assistance. They were issued by several of the states, and those that have been issued will now not be altogether accurate, under the new standards. So we expect to get out one of these big charts, and publish it for distribution, because the judgment is that where they have been used they have been of very great service.

Question.—What is the status of a student who has just completed his premedical course, but has not entered medical college as yet?

Under the exemption act it is no claim for exemption at all. We have under discussion with the Surgeon-General's Office a request for the adoption of some regulations which will permit the Surgeon-General's Office to protect certain classes of premedical students, by allowing them to enlist in the medical enlistment reserve corps. You remember that we protected medical students heretofore by permitting them to enlist in the medical enlisted reserve corps and remain in that on inactive duty, so long as they were completing their course, with the understanding that when that occurred they would be ordered into active service in the Medical Corps. We shall probably adopt some method of that sort to protect the necessary premedical students, because the supply of physicians is really becoming very limited, and we shall have to look after that supply. It is just as important to protect the premedical students as the medical students themselves. I think some plan will be adopted which will enable them to be protected.

Question.—Did you state that it was contemplated issuing new physical examination papers, blanks?

Yes. We are anticipating revising Form 1010.

Question.—Is it contemplated to introduce any questions there in regard to the mental condition of the registrant?

I do not know. Major Work could speak on that. I might say here that if any of the medical aides, any members of the Local Boards, any medical members of the Local Boards or Medical Advisory Boards have any suggestions looking to the improvement of Form 1010, that is, the blank for reports of physical examination, we would be delighted to have all of you send them in. Do not delay by sending it through the Adjutant-General of the state. If you have any suggestion to make of an improvement in Form 1010, send it to the Provost Marshal-General. It will come to Major Work, and we will consider all of the different suggestions in making up these contemplated changes.

Question.—Should a man 57 inches in height already called for limited military service be inducted?

I think not. Of course, he has not been called yet. He is in Class 1 and has been put in Group C. But I think these regulations ought to be applied to men hereafter to be inducted. So I should say that a man who is 57 inches in height, if he comes within the standard in which you are required to put him in Group D, then do not induct him.

Question.—Why is not a registrant under 63 inches in height not to be used for special or limited service?

I think he can be, unless he has the other defects already mentioned in the same clause. I think the one defect of underheight does not necessarily reject him unless he has the other defects mentioned in the same clause. Suppose he has that one single defect and has not any of the others; then he might be put into a special military, limited military service.

Question.—Would it not explain that on the third line of page 25 if that "all" should read "general military service"?

Of course, a lot of apparent inconsistencies and things that are not clear are going to interfere from time to time. If it is necessary to issue some instructions to amplify that or clear it up, it will be done. I shall have a note made of that.

Question.—If a man in the draft age, Class 1, volunteers for some special service in the Army or Navy and is rejected, should the Local Board later induct this man into camp?

That should not have any effect on his subsequent standing with the board. They should examine him, and if he comes under our standards, hold him. The fact that he has been rejected previously is not binding on the board.

Question.—Dr. O. H. Bruegel, East Lansing, Michigan, asks: If a man is referred to a Medical Advisory Board from a distant Local Board for first examination, and the Medical Advisory Board finds that he has an acute condition from which he may recover, has the Medical Advisory Board the right to ask him to return for a later examination, or should he be referred back to his Local Board?

Of course you know that several months ago transfer of physical examination used to be made from a Local Board to the Medical Advisory Board in the other jurisdictions. We have changed that, so that the transfer is now made from a Local Board to a Local Board. In that case the Medical Advisory Board ought to send to the nearest Local Board, and in either case I should say that the Local Board or Medical Advisory Board having jurisdiction of the physical examination of the registrant has the right, under the regulations, to require him to return later, if he is suffering from a temporary condition. As to whether or not he should come before them, or go to some other board, that depends on what the reasons are for him to be transferred to another board.

Question.—What would be the action of the Local Board in the case of a physician within the draft age, who applied for a commission shortly before he was to entrain, but did not have the commission before entrainment? He was honorably discharged for physical disability from the Medical Reserve Corps after two months' service.

The regulations say that a man may be commissioned in the Army, Navy or Marine Corps at any time, regardless of his class. If a registrant has been commissioned in the Medical Reserve Corps, and subsequently honorably discharged on account of a physical defect, and he returns back, he is treated just as if he had never been in the service; I would disregard his honorable discharge on account of the physical disability, because it might be a physical disability which would not permit his retention as a commissioned officer, and yet would leave him entirely qualified to be drafted. So I would simply put that man back on the classification sheet where he belongs, reexamine him physically, and if he is found fit, under the regulations, send him to camp.

Question.—The opportunity for statistical information and registration of tuberculosis is great. Cannot such statistical information for segregation and treatment be instituted by the Local and Medical Advisory Boards?

I should say so. And that reminds me of a matter that I ought to speak to all of you about in this respect. You will remember that Section 11 or 12 provides that the records of Local and District Boards on these matters are to be records open to public inspection, subject only to this: That those portions of the questionnaire, and the other records relating to a man's physical condition, and relating to dependency, cannot be inspected. In other words, a man ought not to have his physical qualification or disqualification exhibited to the world. Now, it has been thought that there was some conflict when a state law requires that all physicians who get any knowledge of the existence of communicable diseases report them forthwith to the local health authorities—it would seem that there was some conflict there. Well, now, there is not. If there is a state or municipal law or ordinance requiring him to report to the proper health authorities all cases of communicable diseases, then, of course, a physician member of a board is bound by that law, and must report to his health authorities such facts even though he acquires that knowledge on account of his connection with the board. That is not a violation of any confidential information. We have had the question frequently, and I want you all to understand that. Those state laws must be complied with, notwithstanding these physical examination reports as to a man, as confidential, so far as the general public is concerned.

Question.—In case a man is returned in good health with discharge on account of tuberculosis, and in sanatorium and by all diagnostic means it is impossible to prove this diagnosis, should he be placed in Class 5 or Class 1? The local board is satisfied that diagnosis at camp was a mistake. Page 137 we interpret as accepting him again. Are we right?

I should say that the finding of the camp commander as to that is positive, and is binding on the board. Now, if you think that this man at camp has made a mistake, you should get in touch with the medical aide, and get him to take it up through the Adjutant-General with the division surgeon, and suggest that this man be reexamined, and if you do reexamine him yourself and you find absolutely no symptoms of the disease, take it up with the camp surgeon and try to get him to revise it. If the camp surgeon sends the man back, and he says the man has tuberculosis, you do not have the right to substitute your judgment in place of his, although you may take it up the way I suggest.

Question—When a registrant is called for service and found to be sick and unable to go, should he be sent as soon as he is able?

Yes; if it is a mere temporary defect. You can simply stay his induction order until he is fit for service.

Question.—Dr. T. I. Motter, Medical Advisory Board 3, Illinois, asks: When a registrant makes appeal to the Advisory Board, shall the Advisory Board examine him only on such conditions as he claims, or make complete examination?

I think that is within the discretion of the Advisory Board. If the Local Board holds him and he says, "They have not any business to hold me, because I have a bad heart murmur," I think the Medical Advisory Board would be justified in examining his heart, and if they find him all right, send him back. That is a matter on which you cannot make a hard and fast rule, but it is a matter within the discretion of the board.

Question.—Dr. O. L. Williamson, Marianna, Ark., asks: Many physically fit negroes have not a chest mobility of 2 inches. They do not know how to expand the chest. What shall be done in such cases?

I guess that is a local question, a problem that you will have to thresh out and settle for yourself. I do not know how to give a negro 4 inch expansion, if he has only 2.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JULY 13, 1918

MORTALITY PHENOMENA IN THE PHILIPPINES

There has been a general tendency during the past few decades for the death rate in all civilized countries to fall. Undoubtedly the conquest of many of the diseases of childhood and the better control of communicable diseases, along with other modern developments of hygiene, have contributed to bring about this result. Nevertheless, the contrasts between the mortality statistics in the United States and some of the leading European countries show that it is important to consider the conditions in each country by themselves, if further progress in the mastery over early death is to be attained. For example, whereas in England and Wales the death rate has shown a decrease at all ages, in this country in recent years there has appeared to be an increase in the rate beyond the age of 45 years. This has been ascribed to the encroachment of the degenerative or regressive types of diseases, which affect chiefly those in middle life and old age.

Some new data bearing on the incidence of age and other factors in relation to deaths in our insular possessions in the Far East have been gathered by Manlove[1] at the University of the Philippines in Manila. The Philippines have a high mortality at an early period of life; this is likewise true in India where, as has been shown by Rogers,[2] the majority of deaths occur in the same period. Out of a Philippine population of seven millions within the registration area, 55 per cent. of the deaths took place between birth and 9 years, and 73 per cent. before the age of 40.

As the average duration of the life of Filipinos is shown to be considerably below forty years, great interest and still greater hygienic importance attach to the probable causes. These have been given by Manlove as high infant mortality, tuberculosis and the tropical diseases, such as cholera, dysentery and tropical fevers. The United States Census Bureau calculated in 1912 that 400,000 of the present inhabitants of the Philippine Islands were "doomed to die of tuberculosis." During one year nearly 50 per cent. of the Filipino infants died.

If these conditions in earlier life are unlike those found in this country so far as the prevalence of tropical diseases forms a contrast in the East as a cause of death, the situation there shows a more or less constant increase of atheroma in successive decades of life, just as is true in Western countries. The incidence of atheroma with associated hypertrophy of the heart and chronic interstitial nephritis increases suddenly after 40 years of age, when it becomes an important factor in the cause of death. The high percentage of atheroma is probably due more often to chronic intestinal disorder leading to chronic toxemia, according to Manlove, than to any other condition, such as syphilis, alcoholism or abnormal blood pressure. The chief manifestations of syphilis in Filipinos as seen at necropsy seem to be in the arteries. High blood pressure and strain do not appear to be important factors in the production of atheroma or, probably, in the genesis of aneurysms in these people. The findings concerning vascular lesions at necropsy in the Philippines agree with the observations of Rogers for India.

INVALIDS AND WAR TIME FOOD RESTRICTIONS

As soon as the prospect of some degree of governmental control over food loomed up as a contingency of the war, many invalids and not a few of their medical advisers began to experience uneasiness regarding the effects on the sick. Thus far we in this country have undergone few if any severe hardships from restrictions of diet. Properly disposed persons have, it is true, given up wheat or, rather, have replaced this food with an equivalent substitutive cereal. Our sugar allowance has yet to be reduced to a limit that entails even slight changes in the palatability of our meals. The shortage of beef and some other forms of flesh is just beginning to make itself more keenly felt among the less well-to-do.

Under such circumstances our American patients have yet to experience any real hardships of food restrictions, even when voluntary rationing has been adopted by faithful patriots. But no one can foresee the immediate cessation of hostilities, not to speak of the restoration of normal food conditions in the world. Hence it is the part of preparedness to anticipate possible future deprivations by a plan of preparatory decisions that shall not menace the welfare of the sick more than is absolutely necessary, if, indeed, any danger in diet need be involved at all. Many months of experience in the case of our allies must serve in part as a guide. Recent regulations by the British Ministry of Food indicate that invalids are to be well cared for. The regulations allow a greatly increased ration to sufferers from diabetes and from tuberculosis. Diabetics are allowed the maximum of 2½ pounds of butcher's meat, 1 pound of bacon, and 1½ pounds of butter or margarin weekly. Tuberculosis patients are allowed a maximum of 2½ pounds of meat, 1 pound of bacon, and 1 pound of butter weekly, in view of the fact that protein and fat are necessary to the diet of consumptives. Most foods, besides milk, which are important in cooking for the sick—such as eggs, fish, rice and flour—are not rationed. For all who need it, extra milk may be obtained through local food controllers.

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[1] Manlove, C. H.: Incidence of Age, Atheroma, and Aneurysms as Seen in Autopsies of Filipinos, Philippine Jour. Sc. (B), 1917, 12, 233.

[2] Rogers, L.: Gleanings from the Calcutta Post-Mortem Records, Indian Med. Gaz., 1910, 45, 84, 124.

The medical profession will endorse these special dispensations which help to provide "diets suitable to the complaints." Nursing mothers obviously deserve a supplemented ration, and particularly an extra allowance of milk where the supply is restricted. On the other hand, it is interesting to note, in view of a widespread demand for an allowance of white bread to invalids, that the British Ministry of Foods does not favor extensive applications of this sort, since it seems demonstrated that although the war breads may not always be as palatable as white bread, they are, when properly baked and thoroughly chewed, satisfactorily digested. We believe that American experts in nutrition are inclined to adopt this view despite the occasional outburst against the indigestibility of some special cereal mixture.

Fortunately the war may help to dispel the unfounded belief in some superior nutritive virtue of beef tea. However much it may please the palate or satisfy the patient, this concoction is anything but an efficient food. A shortage need not unduly disturb the dietitian. The same is true of a number of so-called sick room specialties or delicacies which may be delectable yet not indispensable. Accordingly, when physicians are importuned to provide special privileges for patients, they may do well to bear in mind a recent utterance[1] by one familiar with modern dietetics and the science of nutrition:

> The physician's chief difficulty is not with the sick. It is with those, not obviously ill, who assume that the food to which they are accustomed is the food that is necessary for their health, and appeal to him to support this view by a certificate. Many people have grown up in the belief that their digestion is peculiar. Occasionally that is true, but nearly always it is not. Every one of experience will agree that genuine idiosyncrasies are among the rarities of medicine. The thoughtless indulgence of parents is sometimes to blame for restricted tastes; but whatever the cause may be, all doctors know what a handicap to the individual such special dislikes are in illness; and at the present time they prove most inconvenient to their owners. No one would pretend that the foods now available are what we would prefer either in health or sickness, and those who feel the change most will have general sympathy; nevertheless, it is the duty of the medical man to explain to such applicants that their condition is not one for the treatment of which it is justifiable to ask for a larger share of the national store.

It would, indeed, be difficult to frame the problem and the duty of the chronic dietary complainant with greater truth and fairness to all that is involved.

THE PATHOLOGIC EFFECTS OF CRAB LICE

Parasitology has ceased in recent years to be the concern only of the zoological specialist. The life history and habits of the animal parasites that infest man deserve more than passing notice from the student of medicine because they are already recognized as being involved in several of the serious infections of human beings. The relation of the flea to bubonic plague is now a familiar story. The body louse, *Pediculus humanus*, feeding on the blood of a patient, may become transferred to a healthy person and readily transmit the infectious agent. The demonstration of such a mode of dissemination of trench fever has only recently been an achievement of American scientists working near the battlefields of Europe.[1] The war has likewise emphasized the association of such parasites with the formidable typhus fever, and made delousing a sanitary precaution in many armed camps. Therefore, instead of dismissing the consideration of the mosquito, the flea and the louse as insects that are the subject of entomologic curiosity, the medical investigator of today is eager, and quite properly so, to cull every item of information regarding their biologic behavior. Thus has the modern science of parasitology become truly dignified.

Heretofore the crab louse, *Phthirus pubis*, has received little attention in comparison with the more familiar forms of body lice belonging to the genus *Pediculus*. It is not so prevalent, and it is not known to convey any infective disease. Statistics collected for verminous persons admitted to Boston hospitals show that about 3 per cent. were infested with crab lice. Thanks to the studies of Nuttall,[2] our knowledge of the biology and pathologic effects of this species has been made clearer. Although it appears to be parasitic chiefly on persons leading an active sexual life, recent investigations have shown that the crab lice frequently infest soldiers in barrack, a fact which gives an added wartime significance to studies of the insect. Although the pubic and the perianal and axillary regions are the sites of selection for its parasitism, there is according to Nuttall no evidence that these habitats are chosen because of their higher temperature and moisture. The selection of these regions seems to depend on the character of their hairiness. The belief entertained by some writers that crab lice are found only on white races is no longer tenable. It is true that these parasites are rarely found among

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[1] Spriggs, E. I.: Invalid Rations, Brit. Med. Jour., 1918, **1**, 505.

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[1] Strong, R. P.; Swift, H. F.; Opie, E. L.; MacNeal, W. J.; Baetjer, Walter; Pappenheimer, A. M., and Peacock, A. D.: Report on Progress of Trench Fever Investigations, Am. Red Cross Med. Bull., March, 1918; The Journal A. M. A., June 1, 1918, p. 1597.

[2] Nuttall, G. H. F.: The Pathological Effects of Phthirus Pubis, Parasitology, 1918, **10**, 375; The Biology of Phthirus Pubis, ibid., p. 383, from which most of the following statements are taken.

African negroes, owing to their cleanly habits; they shave their armpits and pubes. The lice have been found on the negroes who allow their pubic hair to grow.

The crab louse differs in its feeding habits from the more familiar body louse. It is relatively uncommon to see the insects wandering. They are almost helpless when detached from the hairs to which they cling continuously on the body. Indeed, the parasites move about by shifting from hair to hair. Nuttall points out that for this reason the crab louse is much more likely to be conveyed passively from host to host than is the genus *Pediculus.* Unless disturbed, the parasite remains confined throughout life to a limited area on the host's skin. Scratching of their persons by infected individuals no doubt aids in the spread of the crab lice on them and the dissemination of the insect farther afield. Shed hairs may become agencies in the distribution. Their habit of continuous feeding explains why the insects die so quickly when removed from the host.

According to Nuttall, the pathologic effects of the parasitism of the crab louse on man are on the whole of slight degree. Some persons are more sensitive than others to its presence. On the one hand, the louse may produce no reaction by its bite, or it may be tolerated on the person for years; on the other hand, it may induce pruritus of a more or less severe character, especially in the parts of the body that are most infested and where the skin is most delicate, namely, about the genitalia, the axillae and eyelids. All grades of pruritus are observable. Pale bluish-gray maculae mark the site of the insect's bite. They appear in from eight to twenty-four hours after the louse begins to feed on the spot affected. These maculae are a specific sign of the presence of *Phthirus* on man, but they are not always observed. They disappear usually within a week after removal of the offending parasite, disappearing more rapidly when the skin is irritated. Presumably these maculae are due to extravasated and altered blood.

Melanism, a pigmentation and discoloration amounting almost to blackness, has been described as due to the crab louse. Nuttall is convinced that when this occurs it is of nonspecific origin. It may follow infestation with either form of lice, arising in the course of pediculosis as well as phthiriasis. When itching due to the presence of any skin parasite is prolonged, the scratching leads to hyperemia, pigmentation and desquamation. Melanodermia occurs. Papular eruptions and eczematous inflammation may supervene; they are due to the human insults to the skin. Lesions induced obviously may lead to secondary skin infection with pyogenic bacteria. Rarely a febrile condition may thus follow. At present the allegation that the crab louse may convey tuberculosis scarcely deserves consideration.

THE EXCRETORY CAPACITY OF THE NORMAL KIDNEY

The kidney represents one leg of the tripod of life, to quote an old analogy long used in physiology, because the persistence of its function is indispensable to the maintenance of health in the higher organisms. Experience has demonstrated that all of the mechanisms of the body which have important activities to perform are endowed with large "factors of safety"; that is, they can, without detriment, carry a load far greater than that which is customarily expected of them. Even a greatly fatigued muscle group can be spurred up to an enormous final effort without danger, or at least without frequent damage. How about the capacity of the kidney to increase its work? It is an everyday experience in surgical cases of nephrectomy to see one kidney perform the duties that were previously exercised by two; in other words, the work of the kidney may easily be doubled without detriment.

Addis[1] and his collaborators in the Medical Clinic of Leland Stanford Junior University have found a far higher limit of performance in their experiments on urea excretion. The concentration of urea in the blood is one of the factors regulating the excretion of this waste product. The amount of active secreting tissue in the kidney is another. That the size of the kidney determines the order of magnitude of the average rate of urea excretion at all blood urea concentrations is shown by a comparison of the output in species of different sizes, respectively, at different levels of urea content in the circulating fluid. The average rate in man is more than thirty times greater than that in the rabbit. As the Californian clinicians express it, approximately a man weighs thirty times more than a medium sized rabbit. From the relation that exists between body weight and kidney weight there is presumably about thirty times more renal tissue in man than in the rabbit. The order of magnitude of the average rate of urea excretion appears, therefore, to be a function of the size of the kidney.

We are further assured that under physiologic conditions the performance of the kidney is not influenced by its limitations. This is only a potential factor, says Addis, in the regulation of renal activity, operative in extreme cases of reduction of kidney size by disease, or in the entirely artificial condition arising from the ingestion of large quantities of urea. The normal kidney has a possible range of action much greater than that which it actually covers; for if the average blood urea concentration of the rabbit is taken as 30 mg. per hundred c.c., the fact that the ratio continues to increase up to a level of 225 mg. indicates that the capacity of the kidney is about seven times greater than that which is just sufficient. In anatomic terms it shows, to quote Addis further, that there is seven times more renal tissue than is ordinarily called into full action. It is far fetched, therefore, to speak of kidney "fatigue" in health, when there is little evidence, in the light of such a factor of safety, to show that ordinarily the products of metabolic activity of the kidney accumulate so as to hamper the work of the secreting cells. The pathologic kidney, on the other hand, presents different situations.

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[1] Addis, Thomas; Sheoky, A. E., and Bevier, G.: The Regulation of Renal Activity, II, The Regulation of Urea Excretion by Anatomical Factors, Am. Jour. Physiol., 1918, **46,** 11.

Current Comment

THE HEN AND HER IMITATORS

Probably few foods are so widely used, so greatly relished or so much to be depended on as are eggs. The canny Scot may always be trusted as a judge of values, and the story is told of the Highlander and the Tommy who, on duty in France, captured a hen. The Tommy was anxious to kill it at once and eat it, but the Highlander said: "No. Let us keep her until tomorrow. She might lay an egg." Certain thrifty manufacturers, realizing the great demand for this food product and the rapidly increasing price, have placed on the market so-called substitutes. At least fifty such products are already available. At the request of the Pennsylvania State Department of Agriculture, Prof. C. H. Lawall[1] investigated more than forty of these substitutes. In the introduction to his report he says:

> One of the most reprehensible ways of making money is to take some common, everyday substance, disguise or alter its appearance in some way, make a lot of exaggerated statements regarding it, and then sell it for about ten or fifteen times its market value, extolling it as an economical substitute for some expensive article. There has been no preparation of this class, within recent years, that has sprung into prominence with such rapidity as the so-called egg substitutes and with so little merit or legitimate warrant for their manufacture and sale.

The specimens exhibited resemble the "patent medicine" in many ways besides the method of promotion. It must be evident to any one that from 2 to 4 ounces of a yellow powder cannot possibly represent the nutritive value of two or three dozen eggs, and yet this is one of the mildest claims made by most of these exploiters. There is no question that these substitutes, rather than furthering economy, really add to the high cost of living. Practically every one of them has been found to be chiefly cornstarch colored with coal tar. The protein content varies from 0.7 to 35 per cent. Commercially dried egg, which is a legitimate market product, contains about 45 per cent. of protein. An egg of average size has a nutritive value of 75 calories; three dozen eggs would have a total food value of 2,700 calories. The nutritive value of almost any of the substitutes is about 100 calories an ounce, so that the largest of any of the packages would have a nutritive value of less than one-sixth the number of eggs it claims to replace. In other words, the purchaser replaces an article of diet with a product costing one third as much, but having from one sixth to one eighth of the food value. Moreover, the substitute is colored with an artificial coal tar dye, the purpose being deceptive. The names of the product in every case are chosen to attract the purchaser. They range from simple Egg-O to Egg-Less, Eggnit, Sa-Van-Egg and the less grammatical Savaegg to the Miracle Egg Dispenser, Near-Egg and the miserable pun, Ecc-Kon-O-My. Lawall's conclusions are worthy of reprinting in toto:

> First. The brightest light of publicity should be shed on these products, and the heaviest weight of official authority should be invoked to discourage their manufacture and sale.
>
> Second. They afford an opportunity for unpatriotic profiteering, combined with the development of the art of camouflage to the point of perfection.
>
> Third. Their names are deceptive; their composition in no wise resembles that of egg; the presence of color, in those where it is used, is a fraud, and the claims as to replacing value are either deliberate misstatements or ambiguous phrases.
>
> Finally. Egg substitutes serve no purpose that cannot be served just as satisfactorily and much more cheaply by articles in daily use in every household.

The food commissioner of Pennsylvania, concurring in the statements of Professor Lawall, states that these substitutes are in violation of the general food act of that state, and if found for sale in the state of Pennsylvania, they will be dealt with accordingly.

YEASTLIKE FUNGI IN THE HUMAN INTESTINAL TRACT

Through his studies on the etiology of sprue, Ashford[1] has again directed attention to the possible rôle of fungi in certain diseases. He announced the constant presence of a yeastlike organism in the digestive tract of sprue patients. Yeasts and similar organisms are doubtless being taken into the body daily, just as are bacteria, through alimentary channels; and their fate and behavior are matters of obvious concern. Anderson[2] has remarked in this connection that some of the earliest attempts to associate microorganisms with disease resulted in the discovery of fungi as their causal agents. The fungi causing thrush and ringworm were known and described before any of the pathogenic bacteria had been isolated. Anderson reminds us that during the last quarter of the nineteenth century the bacterial diseases occupied so much of the time of students of human pathology that only in recent years has attention again been directed to the less important fungous diseases. Hence there is timely interest to the investigations he has made in the department of plant pathology of the University of Illinois on the character of the yeastlike fungi in the human intestinal tract. The value of the records may be in part inferred from the fact that 175 persons were examined. Yeastlike fungi were commonly found. They were of many species and, for the most part, such types as are commonly present in nature and known as "wild yeasts." Presumably they are ingested with the food. If one may judge from Anderson's observations, however, the yeastlike organisms are present in relatively small numbers only in healthy persons. There seems to be no one species commonly present in the intestinal tract; furthermore, the feces of persons suffering from gastro-intestinal disorders of various types do not yield a larger number of yeasts than those from healthy persons. Nonpathogenic yeasts, when fed in mass, can pass through the alimentary tract in living condition and may be found in great numbers in the feces. Anderson states that they do not cause serious inconvenience when fed alone, and are not retained longer than the ingested food. It is by no means unlikely, however, that the presence of active yeasts in large numbers over long periods of time might give rise to harmful products or that the organisms might be able after a time to establish themselves in the mucous membrane to the detriment of the host.

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[1] Lawall, Charles H., and Foust, James: Egg Substitutes and So-Called Egg Savers, Bull. Penn. Dept. of Agriculture, 1918, **1**, No. 7.

[1] Ashford, B. K.: Is Sprue a Moniliasis of the Digestive Tract? Am. Jour. Trop. Dis., 1915-1916, **3**, 32; A Monilia Found in Certain Cases of Sprue, THE JOURNAL A. M. A., March 6, 1915, p. 810; Relation of the Genus "Monilia" to Certain Fermentative Conditions of the Intestinal Tract in Porto Rico, June 5, 1915, p. 1893; Further Experimentation in Animals with a Monilia Commonly Found in Sprue, Am. Jour. Med. Sc., 1916, **151**, 520.

[2] Anderson, H. W.: Yeastlike Fungi of the Human Intestinal Tract, Jour. Infect. Dis., 1917, **21**, 341.

ENDOGENOUS URIC ACID

Although the greater proportion of the uric acid that finds its way into the urine is demonstrated to represent the metabolic end-product of ingested purins or purin-yielding compounds, there is a smaller though always present fraction which appears even in the absence of such possible precursors. As a rule it has been believed that this endogenous uric acid, which usually amounts to about 0.3 gm. per day in an adult man, has its origin in the body tissues or else in the bodies of bacteria, which are always present in the alimentary canal. The more popular assumption has associated the endogenous uric acid with the disintegration of nucleoproteins in the continual metabolism of the body cells. However, observations made on the hourly output of endogenous uric acid under various conditions of food intake devoid of sources for this product have shown irregularities in the rate of the elimination of the purin end-product. It appears to be increased for a time after the ingestion of meals, so that some investigators, notably Mares, Smetanka, and Mendel and Stehle, have ascribed the augmented production to the work of the digestive glands. Renewed study of the problem at the University of Illinois by Lewis, Dunn and Doisy[1] has given a new turn to the subject. It was found that ingestion of protein in the form of egg-white or cheese, and likewise the intake of amino-acids, such as glycocoll, alanin, and aspartic and glutamic acids, are followed by a sharp rise in the output of endogenous uric acid about two hours after the intake. Neither urea nor ammonium chlorid, nitrogenous compounds administered in amounts comparable to the amino-acids, had any influence on the uric acid output. These results are believed by the Illinois physiologic chemists to indicate that the rise in uric acid excretion following ingestion of protein food is due not so much to the work of the digestive glands as to stimulation of the cellular metabolism by the amino-acids liberated in the digestion of the protein.

FATTY ACIDS AND HEMOLYSIS

Faust's observations on the toxicity of oleic acid and oleates, and Tallqvist's studies on bothriocephalus anemia, have usually been cited as indicative of the significance of unsaturated fatty acids, such as oleic acid, in certain pathologic processes.[1] As a matter of fact, very little has been known definitely regarding the extent to which these compounds actually may occur in the organism. Chemical examination of fats of different tissue origin clearly demonstrates that the content of unsaturated fatty acid radicals, and notably of oleic acid, varies in different parts of the organism. Indeed, Leathes[2] has built up an elaborate theory regarding the saturation and desaturation of fats in the body, and the part that the liver in particular may play in the process. Fatty acids are transported in the circulation either free or combined as glycerids (true fats), esters of cholesterol, or soaps, as well as in the phosphatids like lecithin. To what extent they may occur has now been shown by Csonka,[3] who finds that unsaturated fatty acids are a product of normal metabolism, being present in normal human blood, in which they form 48 per cent. of the total fatty acids. Judged by their iodin absorption power there are, in addition to oleic acid, other unsaturated fatty acids both higher and lower than oleic, although in small amounts. The iodin numbers of the unsaturated fatty acids in pathologic conditions are generally higher than in normal persons, especially in patients with low hemoglobin values. As such acids exist in normal human blood as well as in pathologic conditions without anemia, Csonka believes that it is necessary to look further for the primary cause of toxic hemolysis. Some of the current conceptions regarding lytic reactions in the blood will hereby demand revision and reinvestigation.

ANTHRAX FROM SHAVING BRUSHES

The occurrence of several cases of anthrax from infected shaving brushes among the American military forces indicates that we are not free from a danger which has been called to our attention by the English in the last three years. The first recorded case, apparently, was noted by the London correspondent of The Journal[4] on July 9, 1915, only a week after the necropsy. This case, one other infection from a brush of the same origin, and a third due to a brush from a different source were thoroughly traced and reported by Elworthy.[5] Other cases have been mentioned from time to time by THE JOURNAL'S correspondent,[6] the most detailed account of the whole series of cases up to February, 1917, appearing as a blue book of the Local Government Board.[7] For the benefit of those who may encounter cases of this nature, and also for a general warning, a brief review of this report is given here. Of sixty-five English cases, civilian and military, sixteen were proved beyond reasonable doubt to have originated from infected shaving brushes, the evidence being that a new brush was used in each case just before the malignant pustule appeared, and that virulent anthrax was found not merely on the patient's brush (in which case the patient might have infected it), but on similar brushes obtained from the same shops or wholesalers. Most of the other cases were suspected of having originated in the same way. It is alleged that four of these cases were due to shaving brushes made in New York. Obviously these reports indicate the necessity of more care than is being given to the preparation of toilet accessories made from animal hides.

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[1] Lewis, H. B.; Dunn, M. S., and Doisy, E. A.: Studies in Endogenous Uric Acid Metabolism, Jour. Biol. Chem., 1918, **33**, 15.

[1] Faust, E. S.: Arch. f. exper. Path. u. Pharmakol., Supp., 1908, p. 171. Tallqvist, T. W.: Ztschr. f. klin. Med., 1907, **61**, 427. Faust and Tallqvist: Arch. f. exper. Path. u. Pharmakol., 1907, **57**, 367.

[2] Leathes, J. B.: The Fats, Monographs on Biochemistry; Ergebn. d. Physiol., 1909, **8**, 356.

[3] Csonka, F. A.: The Fatty Acids in Human Blood in Normal and Pathological Conditions, Jour. Biol. Chem., 1918, **33**, 401.

[4] The Journal A. M. A., July 24, 1915, p. 348.

[5] Elworthy, R. R.: Outbreak of Anthrax Conveyed by Infected Shaving Brushes, Lancet, London, 1916, **1**, 20.

Medical Mobilization and the War

Students on Overseas Duty Not Granted Furlough

The Adjutant-General of the Army announces that is is the policy of the War Department not to allow the return of enlisted men from overseas to the United States for the purpose of completing their education. This policy applies to medical, dental and veterinary students.

New Regulations Regarding the Serving of Liquor to Soldiers

It is announced that new regulations have been made relative to serving liquor to soldiers which prevent selling, bartering, giving, serving, or knowingly delivering alcoholic liquor to any officer or member of the military forces within the United States, its territories or possessions or any place under its control, except to medical officers for medicinal purposes.

Physicians Born in Enemy Alien Countries Eligible for Commission Under Restricted Conditions

The Secretary of War has ruled that men born in an alien enemy country or in a country allied thereto, who emigrated to the United States prior to 5 years of age and who are of approved loyalty and a United States citizen either through their own or through their parents' naturalization, will be deemed eligible for commission in the Army. This, of course, includes commissions for the Medical Reserve Corps.

Public Health Activities Under One Control

Orders have been issued that all sanitary and public health activities carried on by any executive bureau, agency or office especially created for or concerned in the prosecution of the existing war shall be exercised under the supervision and control of the Secretary of the Treasury. This does not affect the jurisdiction exercised by the Surgeons-General of the Army and of the Navy and the Provost Marshal-General in the performance of their functions which are military in character as distinguished from civil public health duties.

Women Health Officers for Munitions Plants

Women health officers for munitions plants are to be trained under the direction of the women's division of the industrial service section of the Army Ordnance Department for the purpose of maintaining the health of women workers in munitions plants. An eight weeks' course was commenced, June 26, at Mount Holyoke College, South Hadley, Mass., for a limited number of women health officers who have had a college education or its equivalent, and most of whom have had experience with working women. These candidates are to be trained as health experts who, having a knowledge of the psychology of the woman worker, will be able to do constructive, preventive health work such as the physicians and nurses now employed by the plants are unable to do. These women health officers must, of course, be in good health, and be able to create among their charges a desire for wholesome living.

Mobile Hospital Units Ready for Duty Overseas

Mobile hospital units, ready to embark for service abroad immediately, including base hospitals, evacuation hospitals, evacuation ambulance companies, railroad hospital trains, convalescent camps and medical supply depots, have been organized by the Surgeon-General's Office in addition to the regular medical department units accompanying the various military organizations. Fifty railroad hospital trains of sixteen cars each, including operating rooms, kitchens, personnel car, etc., and with a capacity of 400 patients, have either been ordered sent to or have been delivered to the American Expeditionary Forces. Half of the organized base hospitals not yet in France are ready to leave at from two weeks' to a month's notice, each with a personnel of thirty-five medical and sanitary officers, 100 Army nurses (women) and 200 enlisted men, and a capacity of 1,000 beds adapted for expansion. The evacuation hospitals have each a personnel of thirty-four officers and 237 men, with a normal capacity of 1,000 beds, and have about the same equipment as the base hospitals. Each evacuation ambulance company consists of one officer and thirty-seven men who operate twenty ambulances; however, the strength of these companies can be increased on arrival in Europe. The personnel formed on this side for a convalescent camp include ten officers and ninety enlisted men, later augmented and largely replaced by medical officers and enlisted men from among those convalescing. Such a camp cares for 10,000 patients. At these camps a great deal of reconstruction work will be done, as will also be done in the convalescent depot now being formed for overseas duty.

Prisoners of War

The following American medical officers are reported to be prisoners of war in Germany: Capt. Elmer J. Presper, Philadelphia, attached to B. E. F.; Dr. J. Breckenridge Bayne, Washington, D. C., who has been serving in Roumania; Lieut. Robert Barnwell Rhett, M. R. C., Charleston, S. C., and Lieut. J. Frank Crawford, M. R. C., Warsaw, N. Y.

Wounded and Missing

Capt. Arthur H. Sewing, M. R. C., St. Louis, is reported to be missing.——Lieut. Allen G. Heard, M. R. C., Galveston, Texas, has recovered from the effects of a German gas attack, and has been ordered to six months' duty in a base hospital.——Capt. William J. Burdell, M. R. C., Lugoff, S. C., suffered the loss of his index finger and a wound of the thigh by a bomb dropped by a German aeroplane during a night raid.——Lieut. William J. McGregor, M. R. C., Wilkinsburg, who was wounded in France several months ago, has been transferred to the American Red Cross Hospital, London.——Capt. Charles H. Arnold, M. R. C., Lincoln, Neb., on duty with the British Army, suffered a severe wound of the head recently.——Dr. Paul V. Stewart, M. R. C., Warren, Pa., who was gassed recently, is reported to be convalescent.——Capt. Howard T. Wickert, M. R. C., Huntsville, Utah, is under treatment in a Paris hospital recovering from the effects of poison gas.——Dr. Francis E. Fronczak, health commissioner of Buffalo, was wounded by shrapnel, in the head, face and right hand, while making inspection of front line trenches. ——In the *Official Bulletin* of July 7 it is announced that Major Daniel F. McGuire, Pensacola, Fla., has been seriously wounded. This presumably applies to Major Daniel F. Maguire, M. C., U. S. Army, who is known to be in France and his home address is Pensacola, Fla.

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[6] THE JOURNAL A. M. A., Sept. 11, 1916, p. 1030; Jan. 13, 1917, p. 132; Aug. 4, 1917, p. 396.

[7] Coutts, F. J. H.: Report on an Inquiry into Cases of Anthrax (Malignant Pustule or External Anthrax) Suspected to be Due to the Use of Infected Shaving Brushes, Reports of the Local Government Board on Public Health and Medical Subjects, New Series, No. 112, 1917.

Sanitary Section Cited

For courage in action the members of the 65th Sanitary Section, U. S. Army, has been cited in communique signed by the commander of the 121st Infantry Division. The communique states that in the heavy battles taking place the personnel of the sanitary section cited has been "always ready to go forward to the zones most intensely under enemy fire and expose themselves voluntarily to rescue and bring back our wounded. Worthy sons of their great country they show the initiative, the audacity, the calm courage of their race."

American Surgeons Decorated

Dr. W. D. Carlyle, a dentist of Salem, Ore., and at present on duty with the Y. M. C. A., Russian unit in France, was recently decorated with the Order of Stanislaus for bravery in caring for wounded.——Lieut. John W. Sherrick, M. R. C., Ann Arbor, Mich., has been given the military cross by the British government for bravery and devoted service in the trenches.——Lieut. Samuel H. Adams, M. R. C., Pittsburgh, now on duty with the British forces in France, has been awarded the military cross for bringing in an ambulance under shell fire.——Admiral Wilson has cited for daring bravery in rescuing thirty-four of the seventy-five members of the American munition ship *Florence*, which caught fire in French waters, P. A. Surg. Jesse A. Flautt, U. S. Navy, Galveston, Texas, and Asst. Surg. George E. Cram, Norwalk, U. S. Navy.——Lieut. Charles F. McCarty, Brooklyn, attached to the 9th Essex, has been given the military cross.——It was announced on July 5, that the Distinguished Service Cross had been awarded to Surg. Wrey G. Farwell, U. S. Navy, who "on June 6, personally supervised the evacuation of his wounded commanding officer across a field exposed to fire of machine guns and snipers, thereby displaying the greatest qualities of self-sacrifice and fidelity to duty," and to Asst. Surg. William H. Michael, U. S. Navy, who "displayed unusual courage on the morning of June 6, near Bois de Belleau when he established a dressing station in the open exposed to shell and machine gun fire. Under these conditions he worked several hours, evacuating a large number of wounded."

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

CALIFORNIA

C. D. R. GLEASON, San Francisco

CONNECTICUT

M. L. CHENEY, Bridgeport

DISTRICT OF COLUMBIA

F. D. ADAMS, Washington.
C. M. DOLLMAN, Washington

GEORGIA

T. S. CLAY, Savannah

ILLINOIS

A. H. CARTER, Chicago

IOWA

A. C. DAVIS, Iowa City

KANSAS

W. B. BURR, Longton

KENTUCKY

A. BELL, Hopkinsville
W. W. DURHAM, Hopkinsville
J. G. GAITHER, Hopkinsville

MASSACHUSETTS

J. W. CLARK, Attleboro
C. S. CAPELLE, Boston
W. E. FAULKNER, Boston
J. P. A. BACON, Lawrence
A. R. GARDNER, Lowell
W. H. DRAKE, Weymouth

MICHIGAN

H. L. CHARLES, Calumet
B. R. CORBUS, Grand Rapids

MINNESOTA

H. B. GRIMES, Madelia

MISSOURI

A. M. GREGG, Joplin

NEW HAMPSHIRE

L. R. BROWN, Leconia

NEW JERSEY

N. W. CURRIE, Plainfield
C. M. GRAY, Vineland

NEW YORK

R. V. ALLEN, Canandaigua
C. W. GROVE, Geneva
M. CAMPBELL, New York

NORTH CAROLINA

C. O. ABERNETHY, Raleigh

RHODE ISLAND

W. B. CUTTS, Providence

TEXAS

J. M. F. GILL, Austin
C. W. GRIFFITH, La Porte
T. H. GOODSON, San Antonio

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

DISTRICT OF COLUMBIA

J. A. CONNOR, Washington

FLORIDA

M. P. DEBOE, Cocoa

IDAHO

R. J. CLUEN, Boise

ILLINOIS

T. O. ANDERSON, Chicago
P. R. HUBER, Chicago
B. H. WILCOX, Panama
A. H. BITTER, Quincy
J. H. WALLACE, Sandwich

INDIANA

L. E. FRITSCH, Evansville
C. W. YECK, Evansville
L. K. RYAN, Gary
H. O. WILLIAMS, Kendellville

IOWA

H. P. COLE, Thurman

KANSAS

C. E. SANDERS, Rosedale

MARYLAND

J. J. WEBER, Baltimore

MASSACHUSETTS

H. C. BEAN, Boston
W. H. GREENE, Boston
A. J. SULLIVAN, Brookton
J. A. MATHER, Coleraine
W. H. O'CONNOR, Dorchester
W. H. FLANDERS, Melrose
J. M. WILCOX, Newton Center
F. VAN NUYS, Weston

MICHIGAN

R. G. FERRIS, Detroit
R. A. PERKINS, Detroit
J. M. WHALEN, Grand Rapids

MISSISSIPPI

R. R. WARD, Shipman

MISSOURI

R. D. COWAN, Ardrick
J. J. DAVIS, Kansas City
J. I. DENMAR, Kansas City
E. P. Hall, Kansas City
P. H. OWENS, Kansas City
A. L. PORTER, Kansas City
R. BARNWELL, St. Louis
L. C. McAMIS, St. Louis
S. MOORE, St. Louis
L. A. WILL, St. Louis

NEW JERSEY

J. I. B. VAIL, Blairstown
C. SIRKEN, Passaic
M. E. STITES, Port Norris

NEW YORK

L. F. CRAVER, Albany
A. BRAUNSTEIN, Bronx
J. F. HODES, B[illegible]
L. [illegible]ooklyn
J. [illegible]
F. D. SCUDDER, Locust Valley
E. B. BICKLEY, New York
J. E. CONROY, New York
F. M. GOODCHILD, New York
J. A. McCARTHY, New York
G. R. PETZ, New York
H. ROSENSTEIN, New York
F. E. TWINEY, New York
C. A. TWITZ, New York
G. C. VOGT, Syracuse

NORTH CAROLINA

H. McCOY, Asheville
V. E. ERVIN, Troutmans

OHIO

V. J. GALLAGHER, Cleveland
H. M. O'BRIEN, Cleveland

OKLAHOMA

T. B. HINSON, Enid

PENNSYLVANIA

R. S. GRIFFITH, Newquehoning
F. E. BRISTOL, Philadelphia
J. V. F. CLAY, Philadelphia
T. C. KELLY, Philadelphia
R. A. LEOPOLD, Philadelphia
J. G. PENZA, Philadelphia
R. S. REEVES, Philadelphia
C. D. [illegible]
L. S. [illegible]
A. E. BURKE, Scranton
W. J. O'MALLEY, Scranton
J. R. BURNS, Wilkes-Barre

SOUTH CAROLINA

A. F. MAHONEY, Clio

TEXAS

R. H. WHITE, Meridian

VIRGINIA

J. F. TERRELL, Ashland
G. H. [illegible]rket
N. W. [illegible]
W. A. [illegible]
E. G. WILLIAMS, Richmond
W. W. RIXEY, University

CORRECTION

Under "Orders to Officers of the Medical Reserve Corps," June 29, it is stated that Capt. JOHN T. O'FERRALL is ordered *to Fort Oglethorpe* for instruction in orthopedic surgery. An error was made in copying the order which reads: "Report in person *to the commandant*, Medical Officers' Training Camp, Camp Greenleaf, for the purpose of giving instruction in orthopedic surgery."

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Beauregard, Alexandria, La., as camp surgeon, from Camp Logan, Major HENRY P. CARTER.

To Camp Colt, Gettysburg, Pa., for sanitary inspection, and on completion *to his proper station*, Col. WESTON P. CHAMBERLAIN.

To Camp Crane, Allentown, Pa., for duty, and on completion *to his proper station*, Col. WILLIAM H. MONCRIEF.

To Camp Devens, Ayer, Mass., base hospital from Lakewood, Col. ALLEN M. SMITH.

To Camp Fremont, Palo Alto, Calif., as assistant to camp surgeon, from San Francisco, Major WALTER F. DAVENPORT.

To Camp Hancock, Augusta, Ga., for temporary duty, from Camp McClellan, Capt. OSCAR C. FRUNDT.

To Camp Lee, Petersburg, Va., for consultation, and on completion *to his proper station*, Lieut.-Col. EDGAR KING.

To Camp Meade, Admiral, Md., from New York City, Lieuts. CEDRIC E. FILKINS, ROY T. HASKELL, JOHN C. WOODLAND.

To Camp Sherman, Chillicothe, Ohio, for duty, from Camp Beauregard, Lieut. NEWTON W. SENTELL; *from* Camp Travis, Lieut. JAMES D. EDGAR.

To Cape May, N. J., base hospital, from the Surgeon General's Office, Lieut.-Col. EDWIN C. ELLETT.

To Fort Oglethorpe for inspection, and on completion *to his proper station*, Col. WILLIAM H. G. LOGAN.

To Fort Riley for duty, *from* Walter Reed General Hospital, Major ROBERT S. WOODSON.

To Hoboken, N. J., for duty, from Camp McClellan, Major RUGUS H. HAGOOD, Jr.

To Lakewood, N. J., for duty, from Walter Reed General *Hospital*, Col. CHARLES F. MASON.

To New York City for duty, and on completion *to his proper station*, Lieut.-Col. JAMES BORDLEY.

To report by wire to the commanding general, Central Department, for assignment to duty, from Canal Zone, Col. SAMUEL M. WATERHOUSE.

To Waynesville, N. C., for duty, and on completion *to his proper station*, Lieut.-Col. EARL H. BRUNS.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. SAMUEL E. SIMPSON.

The following order has been revoked: *To Army Medical School* for instruction, from Camp Sevier, Lieut. HARLIN G. TUCKER.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Devens, Ayer, Mass., for duty, from New York City, Lieut. DUKE C. BRADFORD, Birmingham.

To Camp Grant, Rockford, Ill., for duty, from Camp Sheridan, Major JAMES S. McLESTER, Birmingham.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. OMER ROAN, Eva.

To Fort McPherson, Ga., for duty, Lieut. ARTHUR McC. COWDEN, Oneonta.

To Fort Oglethorpe for instruction, Major HENRY B. WILKINSON, Montgomery; Lieuts. LEWIS A. WINDHAM, Daleville; ROBERT H. SHEPHERD, Jasper; ALFRED B. PICKERING, Lantersville.

To report by wire to the commanding general, Southeastern Department for assignment to duty, Lieut. MALCOLM D. SMITH, Prattsville.

Resignation of Lieut. THEODORE M. BLAKE, Fruitdale, accepted.

Arizona

To Fort Sill, Okla., base hospital, Lieut. EARL R. McPHEETERS, Clifton.

Arkansas

To Camp Bowie, Fort Worth, Tex., for duty, from Fort Riley, Lieut. CLAUDE W. DRACE, Piggott.

To Camp Pike, Little Rock, Ark., as orthopedic surgeon, from Boston, Lieut. RAYMOND C. WOLFE, Little Rock.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. OSCAR BARKSDALE, Bassett.

To Fort Sam Houston, Texas, base hospital, from Cape May, Capt. JOHN S. JENKINS, Pine Bluff.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. PASCHAL J. PARK, Cabot.

California

To Camp Bowie, Fort Worth, Texas, for duty, from Fort Riley, Lieut. CALVIN A. WALKER, San Francisco.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Capt. HENRY T. ROONEY, Colfax.

To Camp Fremont, Palo Alto, Calif., base hospital, from San Francisco, Lieut. CHANNING HALL, Alameda.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Fremont, Lieut. EDWIN R. FOUNTAIN, Merced.

To Camp Kearney, Linda Vista, Calif., base hospital, Lieut. GEORGE A. BRIGGS, Sacramento. With the board examining the command for nervous and mental diseases, Capt. FRED J. CONZELMANN, Stockton.

To Camp Lewis, American Lake, Wash., base hospital, Capt. WILLIAM C. MABRY, Los Angeles; Lieut. JOHN C. WILLIAMS, Fresno. For duty, Capts. WILLIAM H. MAYNE, Los Angeles; FRANK LeR. CHAPLINE, Orange; BENJAMIN B. WARD, San Fernando; Lieuts. MARTIN MACAULAY, Monterey; HENNING KOFORD, Oakland; FRED E. KELL, San Bernardino; CORY C. LEDYARD, San Francisco.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. LESTER C. SCULLY, San Jose.

To Camp MacArthur, Waco, Texas, base hospital, Capt. ORLYN S. PHILLIPS, Los Angeles.

To Camp Pike, Little Rock, Ark., for duty, from Army Medical School, Lieut. LELAND O. W. MOORE, Alameda.

To Cape May, N. J., base hospital, from Camp Wheeler, Major HOWARD C. NAFFIZIGER, San Francisco.

To Douglas, Ariz., camp hospital, Lieut. GEORGE W. REYER, Los Angeles.

To Fort McDowell, Calif., for duty, Lieut. LEWIS O. SELIGMAN, Dinuba.

To San Francisco, Calif., Letterman General Hospital, for temporary duty, Lieut. THOMAS N. CUNNANE, Los Angeles.

To Tuscon, Ariz., University of Arizona, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Riley, Lieut. ORRA C. HYDE, Lincoln.

To Whipple Barracks, Ariz., for duty, Lieut. JOHN H. MALLERY, La Mesa; from Camp Kearney, Lieut. CHARLES A. SHEPARD, Needles.

Canal Zone

To Camp Pike, Little Rock, Ark., base hospital, Major WILLIAM McC. JAMES, Panama City, Panama.

Colorado

To Camp Cody, Deming, N. M., base hospital, Capt. EDWARD G. GRIFFIN, Lieut. NORBERT H. KNOCH, Denver.

To Camp Crane, Allentown, Pa., base hospital, from Hoboken, Lieut. FRANK DUNKLE, Denver.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Travis, Lieut. FOREST C. KRACAW, Oak Creek.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Boston, Lieut. JOHN C. HERRICK, Denver.

To Camp Dodge, Des Moines, Ia., base hospital, from Camp Cody, Capt. JOHN R. ESPEY, Trinidad.

To Camp Greene, Charlotte, N. C., base hospital, from Camp Cody, Capt. WALTER F. CHURCH, Greeley.

To Fort Oglethorpe for instruction, Capt. THOMAS LeR. A. SHAFFER, Sadila; Lieuts. JAMES McCARROLL, Denver; WALTER T. BRONSON, Pueblo.

To New Haven, Conn., for duty, Capt. WILBUR T. LITTLE, Canon City.

Connecticut

To Camp Devens, Ayer, Mass., base hospital, Capt. EDWARD F. McGOVERN, Bridgeport. For duty, Lieut. MILTON L. DRYFUS, New Haven; from Fort Oglethorpe, Lieut. JULIAN L. BIRDSON, Hartford.

To Camp Grant, Rockford, Ill., for duty, from Camp Cody, Lieut. MARK T. SHEEHAN, Wallingford.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. JOHN G. ADAM, Canaan.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. CHARLES W. KNAPP, Greenwich.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Capt. WILLIAM P. BURKE, New Haven.

To Camp Wheeler, Macon, Ga., base hospital, from Boston, Lieut. EDWARD B. ALLEN, South Manchester. With the board examining the command for nervous and mental diseases, from Camp Sheridan, Capt. WILLIAM R. MILLER, Southington.

To Fort Oglethorpe, base hospital, from Camp Dodge, Lieut. WILLIAM M. STAHL, Danbury. For instruction, Lieut. WILLIAM M. O'CONNELL, West Haven.

To Hoboken, N. J., base hospital, from New York City, Capt. EDWARD E. ROWELL, Stamford.

To New Haven, Conn., for duty, from Newport News, Lieut. SAMUEL H. BRAUDE, Rockville. Yale University, for duty, from the Surgeon-General's Office, Major MILTON C. WINTERNITZ, New Haven.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Greene*, Charlotte, N. C., base hospital, from Fort Oglethorpe, Capt. HENRY G. ANDERSON, Waterbury. Neurological Institute, for intensive training, Lieut. SIDNEY L. RIESER, Middleton.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Lieut. JOHN G. O'CONNELL, Bridgeport.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Sevier, Major JOHN S. DYE, Waterbury.

Delaware

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. JAMES G. SPACKMAN, Wilmington.

District of Columbia

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Boston, Capt. HARRY L. SCHURMEIER, Washington.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. MELVILLE B. FISCHER, Washington.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Travis, Major FREDERICK D. OWSLEY, Washington.

To Camp Sevier, Greenville, S. C., as assistant to camp surgeon, from Fort Oglethorpe, Capt. JAMES B. LAUGHLIN, Washington. Base hospital, from Washington, Capt. WALTER A. WELLS, Washington.

To Fairfield, Ohio, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. CHARLES W. HYDE, Washington.

To Fort Oglethorpe for instruction, Lieut. JACOB KOTZ, Washington.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. DANIEL W. PRENTISS, Washington.

To Plattsburg Barracks, N. Y., for duty, Lieut. CLARENCE A. NEYMANN, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton, L. I., N. Y.*, base hospital, Capt. LEE P. KAULL, Washington.

To Washington, D. C., St. Elizabeth's Hospital, for intensive training, Lieut. ELMER B. M. CASEY, Washington.

Florida

To Camp Joseph E. Johnston, Jacksonville, Fla., as orthopedic surgeon, from Boston, Lieut. LELAND F. CARLTON, Tampa.

To Fort Oglethorpe for instruction, Lieuts. ROBERT L. MILLER, Deland; MOZART A. LISCHKOFF, Pensacola.

Georgia

To Camp Dodge, Des Moines, Ia., for duty, from Army Medical School, Lieut. HARVEY W. SNYDER, Atlanta.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. WILLIAM E. McCURRY, Hartwell.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. MARCELLUS F. COCHRAN, Barnesville.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Shelby, Lieut. JESSE L. MEEKS, Atlanta.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capts. ARTHUR P. FLOWERS, GEORGE C. MIZELL, Atlanta.

To Cape May, N. J., base hospital, Lieut. GRADY E. CLAY, Atlanta.

To Fort Oglethorpe for instruction, Major THOMAS S. CLAY, Savannah; Capts. GUY CHAPPELL, Dawson; JOHN B. RUDOLPH, Gainesville; Lieuts. ROBERT B. LAMB, Demorest; JAMES A. THRASH, Greenville; JAMES M. HARTLEY, Jeffersonville; DICK R. LONGINO, Rex; CHARLES USHER, Savannah; CONRAD L. ALLGOOD, Scottdale; JESSE E. D. ISBELL, Toccoa.

To report by wire to the commanding general, Southern Department, for assignment to duty, Capt. OSCAR G. CRANFORD, Sasser.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. RUSSELL F. WILSON, Atlanta. For instruction in the treatment of infected wounds, and on completion *to Fort McPherson, Ga.*, for temporary duty, Capt. GEORGE P. HUGULEY, Atlanta.

To Sacramento, Calif., Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. JOHN H. HALL, Atlanta.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. GEORGE H. NOBLE, Jr., Atlanta; OSCAR W. DEVAUGHN, Manchester.

Resignation of Lieut. SOLOMON YOUMANS, Normantown, accepted.

Idaho

To Camp Cody, Deming, N. M., base hospital, from San Francisco, Capt. CHARLES H. SPRAGUE, Pocatello.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Capt. LOUIS J. PERKINS, Lewiston.

To Camp Lewis, American Lake, Wash., for duty, Lieut. CHARLES H. BRYAN, Kamiah.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. JAMES F. MILLER, Inkom.

Illinois

To Buffalo, N. Y., Technical High School, to make physical examinations and give medical attention to drafted men and on completion *to his proper station*, from Fort Oglethorpe, Lieut. ANTHONY T. WEBER, Chicago.

To Camp Cody, Deming, N. M., base hospital, from Fort Riley, Capt. DAVID H. KELLER, Winnetka.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. LEROY H. DAGGETT, Wilmette. For duty from Fort Des Moines, Lieut. RALPH C. SULLIVAN, Chicago.

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Lieuts. CARL W. CLARK, THOMAS S. McCLANAHAN, WILLARD H. WATEROUS, RALPH G. WILLY, Chicago; from Fort Oglethorpe, Lieut. CLYDE D. GULICK, Urbana; from New York City, Lieut. CARL B. HERRMANN, Chicago.

To Camp Doniphan, Fort Sill, Okla., base hospital, Capt. JOHN C. FOLEY, Waukegan.

To Camp Gordon, Atlanta, Ga., for orthopedic instruction, and on completion *to Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Lieut. CALVIN M. DEBECK, Chicago.

To Camp Grant, Rockford, Ill., base hospital, Capt. CHARLES C. CLARK, Chicago; from Camp Dodge, Lieuts. LYNN W. ELSTON, ALBERT VANDERKLOOT, Chicago. For duty, Lieut. EDWIN P. McLEAN, Marca.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Capt. HENRY M. VAN HOOK, Mt. Pulaski.

To Camp Logan, Houston, Texas, as orthopedic surgeon, from Boston, Lieut. NELSON H. LOWRY, Jr., Chicago. Base hospital, from Fort Riley, Capt. SAMUEL D. NIXON, Chicago. For duty, from Fort Oglethorpe, Capt. LOGAN O. HAMILTON, Roodhouse; from Fort Riley, Lieut. RUSSELL R. TOMLIN, San Jose.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. TULLY O. HARDESTY, Jacksonville.

To Camp Meade, Admiral, Md., for duty, from Army Medical School, Lieut. EARLE K. HALLOCK, Chicago; from New York City, Lieuts. ARTHUR E [illegible]ngton; FRANK T. DUFFY, Chicago.

To Camp [illegible] Miss., for duty, from Fort Oglethorpe, Lieut. TOM [illegible] Chicago.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. JOHN T. BROSNAN, Chicago.

To Camp Upton, L. I., N. Y., base hospital, from Fort Oglethorpe, Capt. ANDY HALL, Mount Vernon.

To Camp Zachary Tay[illegible], for duty, from Army Medical School, Lieuts. L[illegible], JOHN E. STANTON, HARRY T. SWANSON, Chicago; LUTHER R. MOORE, McLeansboro; from Fort Oglethorpe, Capt. CHARLES E. SHULTZ, Shirley.

To Cape May, N. J., base hospital, from Camp Meade, Lieut. HERMON H. COLE, Springfield.

To Fort Bliss, Texas, base hospital, from Camp Sheridan, Capt. GEORGE C. SHOCKEY, Melrose Park.

To Fort Des Moines, Ia., base hospital, from Camp Dodge, Capt. SAMUEL M. EDISON, Chicago.

To Fort McPherson, Ga., for duty, from New York City, Lieut. FRED McK. MILLER, Chicago.

To Fort Oglethorpe for instruction, Capts. JOHN A. KAPPLEMAN, Chicago; CHRISTIAN H. ZOLLER, Litchfield; WILLIAM A. RIBBECK, Oak Park; Lieuts. WESLEY W. KUNTZ, Baylis; JOSEPH C. MOORE, Brimfield; WM. H. CONSER, Cambridge; WILLIAM BURK, STEVEN J. CONWAY, CHARLES W. GLOVER, PAUL M. HUNTER, DONALD E. MacGREGOR, WILLIAM H. MILLER, RICHARD A. ROCHE, PASHUAPATI J. SARMA, Chicago; ALEXANDER B. TAYLOR, Cobden; HENRY M. WILSON, Granville; WELDON B. KILTON, Harvel; HOWARD C. EMONS, Marissa; SAMUEL W. COFFMAN, Maywood; RAYMOND J. JOSEPH, New Athens; JESSE M. HOYT, Nokomis.

To Fort Riley for instruction, from Camp Dodge, Lieut. THOMAS A. CARTER, Chicago.

To Fort Sill, Okla., base hospital, Capts. GEORGE E. THOMPSON, Chicago; JOHN C. FOLEY, Waukegan; from Camp Dodge, Lieut. HOWARD T. KNIGHT, Elgin. For duty, from Fort Riley, Lieut. BURTON W. BIVINS, Oak Park.

To Grand Forks, N. D., North Dakota School of Mines, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Riley, Lieut. JESSE H. McINTOSH, Chambersburg.

[illegible], *N. J.*, for duty, from Camp Custer, Major GEORGE [illegible] Fort Oglethorpe, Lieut. EMANUEL M. [illegible] from Richmond, Lieut. JOSEPH M. [illegible]

To Jackson Barracks, La., with the board examining the command for nervous and mental diseases, from Camp Sheridan, Capt. WILSON K. DYER, Kankakee.

To Lake Charles, La., Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. FRANK CARY, Chicago.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Hancock, Lieut. HARRY P. REUSS, Granite City. On completion *to Camp Sheridan*, Montgomery, Ala., *base hospital*, *from* Fort Oglethorpe, Lieut. EVAN H. N. GRIFFITHS, Chicago. Orthopedic Hospital, for instruction, from Boston, Capt CLAUDE R. G. FORRESTER, Chicago.

To report by wire to the comanding general, Central Department, for assignment to duty, Capt. JAMES W. VANDERSLICE, Oak Park.

To Washington D. C., for duty in the Surgeon-General's Office, Major ALBERT J. OCHSNER, Chicago.

Honorably discharged, Capt. EDWARD F. WELLS, Chicago.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. JAMES STEVENSON, Chicago.

Indiana

To Camp Beauregard, Alexandria, La., base hospital, Lieut. HOWARD H. JONES, Salmonia.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CARL HENNING, Hanover.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. AUBREY L. LOOP, Economy.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Capt. HARRY H. THOMPSON, Noblesville.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. ARTHUR L. LEEDS, Michigan City.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. ROBERT G. JOHNSTON, Markle.

To Camp Stanley, Leon Springs, Texas, as orthopedic surgeon, from Boston, Lieut. MERRILL S. DAVIS, Marion.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieuts. ERLE O. DANIELS, Marion; COL. C. MACKEY, Whiting.

To Columbia, S. C., University of South Carolina, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. HARVEY K. STORK, Huntingburg.

To Edgewood, Md., base hospital, Capt. JOSEPH L. ALLEN, Greenfield.

To Fort Oglethorpe for instruction, Capts. IRWIN W. DITTON, Fort Wayne; WM. CULLEN SQUIER, Milton; JOHN S. SPRAGUE, North Liberty; ARTHUR LeR. KNAPP, South Bend; JULIUS C. BOHN, Terre Haute; Lieuts. HARRY H. DEES, Bickwell; JOSEPH KENTLING, Bloomington; EUGENE W. MITCHELL, Cannelton; ARCHIE S. BROWN, Clay City; WILLIAM C. LANDIS, Claypool; FAYE O. SCHENCK, Crawfordsville; STERLING P. HOFFMAN, Decatur; GEORGE M. SHEWALTER, Ellwood; GEORGE B. THOMAS, Greenfield; HARRISON A. WALKER, Indianapolis; ALFRED A. THOMPSON, Tyner.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. SAMUEL L. LINGLE, Paoli.

To Washington, D. C., Elizabeth's Hospital, for intensive training, Lieut. EDWARD H. SCHLEGEL, Fort Wayne.

Iowa

To Boulder, Colo., University of Colorado, to make physical examinations and give medical attention to drafted men, from Fort Riley, Lieut. LEONARD J. BOWMAN, Masonville.

To Camp Dodge, Des Moines, Iowa, as orthopedic surgeon, from Boston, Lieut. THEODORE A. WILLIS, Iowa City.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. IRVIN J. SINN, Williamsburg.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Major HAROLD A. SPILMAN, Ottumwa; Lieut. DONALD H. PITTS, Mondamin.

To Fort Oglethorpe for instruction, Major PHILIP B. McLAUGHLIN, Sioux City; Capts. PAUL H. SCHAEFER, Burlington; HERBERT M. DECKER, Davenport; Lieuts. JOHN D. CANTWELL, Davenport; LYSLE C. HOWE, JAMES W. WILSON, Milton; EARL R. LEONARD, Rock Valley.

To Fort Riley, with the board examining the command for nervous and mental diseases, from Camp Bowie, Lieut. PERCY B. BATTEY, Independence.

To Fort Wadsworth, N. Y., for temporary duty, and on completion to his proper station, from New Haven, Lieut. MILTON D. JEWELL, Decorah.

To Newport News, Va., for duty, from Fort Riley, Lieut. JOSEPH W. B. FLAGEOLLE, Sioux City.

Kansas

To Camp Bowie, Fort Worth, Texas, with the board examining the command for nervous and mental diseases, from San Antonio, Lieut. GEORGE E. HESNER, Topeka.

To Camp Dodge, Des Moines, Iowa, as orthopedic surgeon, from Boston, Lieut. WILLIAM G. BOUSE, Centralia. For duty, from Fort Riley, Lieut. JESSE W. BARKER, Chanute.

To Camp Gordon, Atlanta, Ga., base hospital, from Army Medical School, Lieut. ROY W. LAYTON, Kansas City; from Fort Riley, Capt. JAMES W. MAY, Kansas City.

To Camp Logan, Houston, Texas, base hospital, Lieut. WILLIAM LAPAT, Larned.

To Camp Meade, Admiral, Md., for duty, from Army Medical School, Lieut. ROY W. LAYTON, Kansas City; from New York City, Lieut. CASPER J. MIDDLEKAUFF, Hays.

To Fort Oglethorpe for instruction, Capt. HENRY G. SNYDER, Seneca; Lieuts. LEWIS D. MILLS, Greeley; WILLIAM L. BUTLER, Stafford; NED D. MILLER, Topeka; FORREST J. AUSTIN, White Cloud.

Kentucky

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. WILLIAM T. LITTLE, Calvert City.

To Camp Gordon, Atlanta, Ga., for orthopedic instruction, and on completion *to Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Lieut. WILLIAM G. ECKMAN, Covington.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. CASWELL C. TURNER, Glasgow.

To Camp Wheeler, Macon, Ga., base hospital, Capt. JAMES U. RIDLEY, Robards.

[illegible] for instruction, Capt. WILLIAM C. CAYWOOD, [illegible] WILLIAM A. NOBLE, Covington; DALTON H. RAY, [illegible], CARLISLE R. PETTY, Louisville; JAMES ARTHUR KIRK, Philpot; ROBERT C. SIEVERS, Pine Knot.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Meade*, Admiral, Md., base hospital, Lieut. WILLIAM C. KUNKLER, Louisville.

Louisiana

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. GEORGE F. ROELING, New Orleans.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. CHARLES B. LAW, Pelican.

To Fort McPherson, Ga., for temporary duty, Lieut. EDWARD L. KING, New Orleans.

To Fort Oglethorpe for instruction, Lieut. EUGENE B. MIDDLETON, Heflin.

To Hoboken, N. J., base hospital, from Camp Shelby, Lieut. FRANK CHETTA, New Orleans.

Maine

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. HENRY M. CHAPMAN, Bangor.

To Camp Upton, L. I., N. Y., base hospital, Capt. ALBION H. LITTLE, Portland.

To Richmond, Va., for consultation, and on completion *to his proper station*, from Camp Lee, Major TALCOTT O. VANAMEE, Portland.

To Rockefeller Institute for instruction in bacteriology, from Camp Upton, Capt. LESTER ADAMS, Bangor.

Maryland

To Army Medical School for instruction, Lieut. JOHN L. DORSEY, Baltimore.

To Camp Crane, Allentown, Pa., base hospital, from Camp Sheridan, Major HENRY O. REIK, Baltimore.

To Camp Devens, Ayer, Mass., for duty, From Fort Oglethorpe, Lieut. FRANCIS X. KEARNEY, Baltimore.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. JOSEPH T. NELSON, Baltimore.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Upton, Lieut. PHILIP PEARLSTEIN, Baltimore.

To Fort Oglethorpe for instruction, Lieuts. FRANCIS E. ROBERTS, Baltimore; FRANKLIN PIERCE SNODGRASS, Darlington.

To Fort Riley with the board examining the command for nervous and mental diseases, from Camp Sevier, Lieut. JOSEPH P. EDISON, Baltimore.

To New York City for duty, and on completin *to his proper station,* from Washington, Major ROBERT T. TAYLOR, Baltimore.

To Philadelphia, Pa., Spring Garden Institute, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station,* from Fort Oglethorpe, Lieut. MOSES L. LICHTENBERG, Baltimore.

To Troy, N. Y., Troy Central High School, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station,* from Fort Oglethorpe, Lieut. ALBERT L. WILKINSON, Raspeburg.

Massachusetts

To Camp A. A. Humphreys, Accotink, Va., with the board examining the troops for cardiovascular diseases, from Camp Hancock, Lieut. HARRY A. WALKER, Somerville.

To Camp Crane, Allentown, Pa., for duty, Capt. CHARLES E. THOMPSON, Fair Haven.

To Camp Devens, Ayer, Mass., base hospital, Lieut. ALTON J. CHOATE, Gloucester.

To Camp Gordon, Atlanta, Ga., base hospital, from Army Medical School, Lieut. WILLIAM F. GREANEY, Holyoke. With the board examining the command for nervous and mental diseases, and on completion *to his proper station,* from Camp McClellan, Lieut. BUELL L. ASHMORE, Palmer.

To Camp Grant, Rockford, Ill., with the board examining the command for nervous and mental diseases, from Camp McClellan, Capt. HEIMAN CARO, Palmer.

To Camp Lee, Petersburg, Va., base hospital, Capt. JOHN L. LOUGEE, Boston. With the board examining the command for nervous and mental diseases, and on completion *to his proper station,* from Camp Meade, Lieuts. RAYMOND K. FOXWELL, Cambridge; MARTIN W. PECK, Marblehead.

To Camp Meade, Admiral, Md., base hospital, Lieut. HERBERT E. MAYNARD, Winchester. For duty, from Fort Oglethorpe, Capt. WILLIAM J. HAMMOND, Boston.

To Camp Sevier, Greenville, S. C., base hospital, Capt. ERNEST L. HUNT, Worcester.

To Camp Shelby, Hattiesburg, Miss., with the board examining the command for nervous and mental diseases, from Camp Logan, Lieut. FRANCIS S. CALDICOTT, Milford.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Shelby, Lieut. MANUEL F. GUNHA, Boston.

To Camp Upton, L. I., N. Y., base hospital, Major IRVING P. LYON, South Duxbury. For duty, from Army Medical School, Lieut. WILLIAM F. GREANEY, Holyoke.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Sam Houston, Lieut. GEORGE H. BIGELOW, Boston.

To Fort Oglethorpe for consultation, and on completion *to Fort McPherson, Ga.*, for consultation, and on completion *to his proper station,* Major ALEXANDER S. BEGG, Boston. Base hospital, from Camp Custer, Capt. SEARLE B. MARLOW, Boston. For instruction, Capts. ROBERT B. SCALES, Dorchester; HOWARD B. JACKSON, Melrose; JOSEPH W. KELLEY, Worcester; Lieuts. DANIEL F. MURPHY, Beverly; NATHAN ROSENBERG, Boston; JOHN E. CONNELLY, Brookline; FRANK W. CRAWFORD, Holbrook; THOMAS A. SHAUGHNESSY, Loominster; ALFRED F McALPHINE, Somerville; WARREN D. RUSTON, West Somerville.

To Fort Warren, Mass., for duty, Capt. GILMAN L. CHASE, Clinton.

To Madison, Wis., for duty, Lieut. VICTOR C. JACOBSON, Boston.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Houston, Capt. JOHN G. JENNINGS, Boston.

To New Haven, Conn., for duty, Lieut. ERNEST D. PILLSBURY, West Somerville.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Lieut. ROBERT I. WALKER, New Bedford. Boys' Vocational School, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station,* from Fort Oglethorpe, Capt. BERNARD RABINOVITZ, Springfield. Hospital for Ruptured and Crippled, for instruction, from Boston, Lieut. CLARENCE H. HYMAN, Salem.

To report by wire to the commanding general, Northeastern Department, for asignment to duty, Capts. CORNELIUS A. AHEARNE, Jr., Salem; CORNELIUS P. HARKINS, Westfield.

To Richmond, Va., Richmond and Westhampton Colleges, for temporary duty, Capt. GEORGE L. TOBEY, Jr., Boston.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Williamsbridge, N. Y.*, for temporary duty, Capts. FRANK H. LAHEY, Boston; THOMAS F. CARROLL, Brookline.

The following order has been revoked: *To Camp Wheeler,* Macon, Ga,. base hospital, Lieut. LOUIS STRAHLMANN, Boston.

Michigan

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Riley, Capt. EMIL P. W. RICHTER, Saginaw.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. DAMON O. WALTHALL, Ann Arbor. For orthopedic instruction, and on completion *to Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Capt. LUCIUS A. FARNHAM, Pontiac; Lieut. HENRY R. LEIBINGER, Detroit.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. ARTHUR TURNER, Detroit.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. AUSTIN W. HEINE, Mount Clemens.

To Camp Pike, Little Rock, Ark., for duty, from Fort Sill, Lieut. CLAYTON A. WHITE, Burnips.

To Camp Sevier, Greenville, S. C., base hospital, Capt. ALLAN W. McDONALD, Detroit.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. VICTOR F. RYAN, Detroit.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. ARTHUR V. MURTHA, Flint; from Fort Oglethorpe, Lieuts. ALFRED H. RADZINSKI, Detroit; WALTER VAN DE ERVE, Norway; from Williamsbridge, Lieut. AARON L. CHAPMAN, Detroit.

To Fort Oglethorpe for instruction, Capts. MARTIN J. SCHWANS, Detroit; HARRY W. LONG, Escanaba; Lieuts. DUFFIELD R. KRUGER, Detroit; WILLIAM H. LAKE, Grass Lake.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. MAURICE J. CROSS, Delton.

To Mesilla Park, N. M., to make physical examinations and give medical attention to drafted men, and on completion *to his proper station,* from Fort Riley, Lieut. GEORGE L. KOESSLER, Detroit.

To Mount Clemens, Mich., Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. GEORGE E. FROTHINGHAM, Detroit.

To Plattsburg Barracks, N. Y., for duty, Lieuts. SYLVESTER L. BALLARD, Auburn; GUY C. CONKLE, Bayne Falls; ARTHUR B. EGAN, Muskegon; LEROY E. GIBSON, Oxford.

Honorably discharged, Lieut. DANIEL J. LEITHAUSER, Detroit.

Minnesota

To Camp Custer, Battle Creek, Mich., for duty, from Camp Pike, Lieut. HAROLD L. GOSS, Minneapolis.

To Camp Dodge, Des Moines, Iowa, base hospital, Capts. WILLIAM H. EATON, Duluth; WILLIAM W. LEWIS, St. Paul. For duty, from Fort Riley, Lieuts. JOHN STEVENS, Gonvick; HENRY E. DOUGLAS, Hutchinson; from Fort Sill, Capt. ARTHUR L. CLUDAS, Minneapolis.

To Camp Grant, Rockford, Ill., for duty, from Camp Sheridan, Lieut. WALTER E. GREMPLER, Minneapolis. With the board examining the command for nervous and mental diseases, Capt. CHARLES R. BALL, St. Paul.

To Camp Pike, Little Rock, Ark., with the board examining the command for nervous and mental diseases, from Camp Upton, Lieut. FREDERICK P. MOERSCH, Minneapolis.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. SAMUEL O. BLACK, Rochester; from Camp Pike, Lieut. CHARLES H. CHERRY, Chisholm.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. HARRY C. McINTOSH, St. Paul. For duty, from Army Medical School, Lieut. DONALD H. PITTS, Minneapolis.

To Fairfield, Ohio, Signal Corps Aviation School, for duty, from Mineola, Lieut. ROY C. LOWE, Fairmont.

To Fort Oglethorpe, for instruction, Capt. JAMES F. LYNN, Waseca; Lieuts. CLAUDE W. WOODRUFF, Chatfield; ROLF HOODE, Duluth; FREDERICK W. FRANCHERE, Lake Crystal; JOSEPH M. HALL, Minneapolis.

To Fort Sill, Okla., for duty, from Fort Riley, Lieut. HENRY I. TWISS, St. Paul.

To Jefferson Barracks, Mo., for duty, from Fort Riley, Lieut. AXEL W. SWEDENBURG, Gully.

To New Haven, Conn., for duty, Capt. JAMES N. ELLIOTT, Minneapolis.

To Newport News, Va., for duty, from Fort Riley, Lieut. HARRY B. WEINBURGH, Waterville.

To New York City, Hospital for Ruptured and Crippled, for instruction, from Boston, Lieut. PIO BLANCO, Rochester.

To report by wire to the commanding general, Central Department, for assignment to duty, Capts. ROLLIN T. ADAMS, Mantorville; ALLAN B. STEWART, Owatonna.

To report to the commanding general, Philippine Department, for duty, from Camp Shelby, Major WALTER H. DARLING, Minneapolis.

To report to the Surgeon-General of the Army for duty, Major LEONARD G. ROWNTREE, Minneapolis.

To Washington, D. C., for temporary duty, from Camp Dodge, Lieut. WALTER E. CAMP, Minneapolis.

The following order has been revoked: *To Fort Bliss, Texas,* base hospital, from Washington, Capt. WILLIAM R. WOODBURY, Rochester.

Mississippi

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. LEONIDAS H. MARTIN, Hattiesburg.

To Fort Oglethorpe for duty, from Camp Logan, Lieut. JOHN L. WHITE, Sarah. For instruction, Lieuts. ARTHUR M. SHAEFFER, Jackson; ERNEST C. ROUSE, Kosciusko.

To New Haven, Conn., for duty, Capt. THOMAS D. BOURDEAUX, Meridian.

To San Francisco, Calif., Letterman General Hospital, for observation and treatment, from San Diego, Lieut. WILLIAM L. NEWTON, New Albany.

Missouri

To Camp Bowie, Fort Worth, Texas, for duty, from Fort Riley, Capt. JAMES F. COOPER, Hannibal; Lieut. CADWALLADER H. ATCHISON, Waldron.

To Camp Dodge, Des Moines, Iowa, for duty, from Army Medical School, Lieut. CHARLES H. OZIAS, Kansas City.

To Camp Fremont, Palo Alto, Calif., with the board examining the command for nervous and mental diseases, Lieut. GEORGE L. HARRINGTON, Independence.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. HENRY T. O'KELLEY, Patton.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Porter, Capt. WILLIAM T. PATTERSON, Shelbina.

To Camp Pike, Little Rock, Ark., base hospital, Lieut. MAX GOLDMAN, Kansas City.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Jackson, Lieut. BRADFORD F. DEARING, St. Louis.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. HERBERT S. MAXWELL, Hopkins.

To Colonia, N. J., for temporary duty, from Camp Doniphan, Capt. RALPH E. NIEDRINGHAUS, St. Louis.

To Fort Oglethorpe for duty, Lieut. GEORGE A. TELFER, St. Louis. For instruction, Capt. CHARLES W. BERTRAM, St. Joseph; Lieuts. SHIELDS W. FAIR, Belton; LINCOLN J. PIERCE, Independence; WILLIAM H. HINES, Kansas City; WALLACE E. MATLOCK, Kennett; MINOR F. SEWELL, Malta Bend; ARCH KIRKHAM, Orrick; WILLIAM H. DUCKWORTH, St. Clair; STEPHEN R. COLEMAN, THOMAS T. HOXSEY, St. Louis; ALBERT W. EBELING, Warrentown.

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. JAMES L. DOWNING, Oak Grove.

To Fort Thomas, Ky., for duty, from Fort Riley, Lieut. MILLER O. COOMBS, Joplin.

To Hampton, Va., Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. FREDERICK C. SIMON, St. Louis.

To Houston, Texas, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. THEODORE S. BLAKESLEY, Kansas City.

To Montgomery, Ala., Signal Corps Aviation School, as flight surgeon, from Mineola, Lieut. JOHN H. TIMBERMAN, Marston.

To New Haven, Conn., for duty, Capt. PHREEBORN G. PAUGH, St. Louis; Lieut. FRANK JAMES, Sheldon.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. ARTHUR R. McCOMAS, Sturgeon.

To Washington, D. C., for duty in the Surgeon-General's Office, from St. Louis, Major HANAU W. LOEB, St. Louis.

To Whipple Barracks, Ariz., for duty, from Fort Riley, Capt. GAIL D. ALLEE, Lamar.

Honorably discharged, Lieut. FELIX COHEN, Kansas City. On accou[illegible] existing *prior to entrance into the service*, Capt. [illegible], Clinton.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. NATHAN ZOGLIN, Kansas City.

Montana

To Camp Cody, Deming, N. M., as orthopedic surgeon, from Boston, Lieut. ARTHUR A. HUSSER; Bingham.

To Camp Grant, Rockford, Ill., as orthopedic surgeon, from Boston, Lieut. JOHN W. OLSON, Troy.

To Camp Lewis, American Lake, Wash., for duty, Capt. ELMER L. SUTHERLAND, Sheridan; Lieuts. DRURA CLAIBORN, Big Timber; CHARLES E. BELTZER, Washoe.

Nebraska

To Brownsville, Texas, base hospital, from Camp Travis, Lieut. JOSEPH ANTONY, Omaha.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Grant, Capt. HARRY R. CARSON, Norfolk.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Capt. FINDLEY J. McRAE, Albion.

To Camp Sevier, Greenville, S. C., for duty, from New York City, Capt. JOHN R. BEATTY, Butte.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Major JOHN M. MAYHEW, Lincoln.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Zachary Taylor, Capt. SAMUEL J. STEWART, Hastings.

To Fort Oglethorpe as instructor, from Camp Sevier, Capt. WILLIAM N. ANDERSON, Omaha. For instruction, Capts. ELI B. HAMEL, Hastings; ROYAL SCUDDER, Nalmo; JAMES A. TROWBRIDGE, Superior; Lieut. HAROLD E. WHITE, Swanton.

To Fort Sill, Okla., base hospital, Capt. ELMER K. PORTER, Omaha.

To Indianapolis, Ind., Chamber of Commerce, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Riley, Lieut. WILLIAM H. PHILLIPS, Carroll.

To Whipple Barracks, Ariz., for duty, from Fort Riley, Lieut. FRANCIS J. STEJSKAL, Crete.

Nevada

To Camp Meade, Admiral, Md., for duty, Lieut. SAMUEL B. BYINGTON, Reno.

New Hampshire

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Shelby, Lieut. RALPH S. PERKINS, Exeter.

To Camp Pike, Litle Rock, Ark., with the board examining the command for nervous and mental diseases, from Camp Gordon, Capt. HOWARD W. CLEASBY, Lancaster.

To Camp Travis, Fort Sam Houston, Texas, with the board examining the command for nervous and mental diseases, from Camp Sheridan, Lieut. GOODWIN A. JOHNSON, Concord.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Shelby, Lieut. LOUIS F. FALLON, St. Anthony.

To Fort Oglethorpe for instruction, Lieut. BURTON D. THORPE, Newport.

New Jersey

To Bayonne, N. J., Board of Education, Public School No. 2, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Capt. PALMER A. POTTER, East Orange.

To Camp Devens, Ayer, Mass., base hospital, Lieut. JOHN J. O'CONNOR, West Hoboken. For duty, from Fort Oglethorpe, Lieut. HENRY H. TOMLIN, Wildwood.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. EDWARD LeR. MINARD, East Orange.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. WILLIAM G. SHEMELEY, Jr., Camden.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Sherman, Capt. HAROLD I. GOSLINE, Trenton.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. RAWLEY W. WARD, Carneys Point.

To Fort Oglethorpe for instruction, Major C. E. SUTPHEN, Newark; Capt. HARRY G. MACDONALD, Hackensack; Lieuts. PHILIP KRESCH, Bayonne; PERCY R. McFEELY, Bogota; MAX KUMMEL, Harrison; CHARLES P. De FUCCIO, Jersey City; THOMAS J. KELLY, WILLIAM A. TANSEY, Newark; MICHAEL SARLA, Paterson; ABRAHAM OCKENE, West Hoboken.

To Fort Riley, base hospital, from Camp Logan, Capt. DENNIS F. O'CONNOR, South Orange.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Mineola, Capt. FERDINAND G. ANGENY, Avon-by-the-Sea.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, from Fort Oglethorpe, Lieut. DAVID C. THOMPSON, Bloomfield.

To South Baltimore, Md., for duty, from Fort Oglethorpe, Lieut. HARVEY W. HARTMAN, Keyport.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ISADOR H. FRANKLIN, Jersey City.

New Mexico

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. HERBERT H. GALLATIN, Lovingston.

To Fort Bayard, N. M., for duty, from Camp Cody, Capt. FRED A. DILLON, Clovis.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Kelly, Capt. WILLIAM MACLAKE, Siver City.

To Rapid City, S. D., to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. ETHAN St. C. MILFORD, Albuquerque.

New York

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. RAYMOND G. BELL, Binghamton.

To Camp Crane, Allentown, Pa., to examine the command for nervous and mental diseases, Capt. EDWARD A. SHARP, Buffalo.

To Camp Custer, Battle Creek, Mich., base hospital, Major JOSEPH B. BISSELL, New York City. For duty, from Camp Dodge, Lieut. WILLIAM P. SWEENY, Saratoga Springs; from Camp Wadsworth, Lieut. ISAAC E. GREENBERG, Brooklyn; from Fort Des Moines, Major PERCY H. WILLIAMS, New York City.

To Camp Devens, Ayer, Mass., base hospital, Capt. RAY A. EDSON, Buffalo. For duty, from Army Medical School, Lieut. MICHAEL G. HEALY, New York. With the board examining the troops for cardiovascular diseases, from Camp Sevier, Capt. MARCUS A. ROTHSCHILD, New York City.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Upton, Lieut. RALPH D. REID, New York. With the board examining the command for nervous and mental diseases, Lieut. RAY W. MOODY, Middletown.

To Camp Dodge, Des Moines, Iowa, for duty, from Washington, Capt. STEWART S. PIPER, Elmira.

To Camp Forrest, Chickamauga Park, Ga., for duty, *from Fort Oglethorpe*, Lieut. GEORGE C. BARONE, Buffalo.

To Camp Gordon, Atlanta, Ga., base hospital, from Army Medical School, Lieuts. WILLIAM J. CARROLL, Brooklyn; JAMES J. FITZGERALD, New York. For duty, from Fort Oglethorpe, Lieut. HAROLD C. GOLLY, Brooklyn. For orthopedic instruction, and on completion *to Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Lieuts. FRANK N. POTTS, Buffalo; WILLIS E. CLARKE, KENNETH JOHNSON, New York.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Capt. JOSEPH C. DEVRIES, Brooklyn.

To Camp Laurel, Laurel, Md., for duty, *from Fort Oglethorpe, Lieut.* DWIGHT G. DUDLEY, Endicott.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from Boston, Lieut. HERBERT I. KALLET, Syracuse. Base hospital, from Camp Dodge, Major BERNARD S. OPPENHEIMER, New York.

To Camp MacArthur, Waco, Texas, for duty, *from Fort Oglethorpe*, Capt. CONRAD M. MEYER, New York.

To Camp Meade, Admiral, Md., for duty, from Army Medical School, Lieut. HORACE E. AURINGER, New York; from Camp Devens, Lieut. JOHN F. McNEIL, Central Islip; from Camp Wadsworth, Major ULYSSES S. KAHN, Binghamton.

To Camp Sevier, Greenville, S. C., base hospital, from Boston, Lieut. MORRIS T. KOVEN, Brooklyn.

To Camp Shelby, Hattiesburg, Miss., as orthopedic surgeon, from Boston, Lieut. ROWLAND P. STANLEY, New York.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. STEPHEN W. ROOF, New York.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Dodge, Lieut. ALOYSIUS M. MULHOLLAND, New York.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp Meade, Lieut. THOMAS F. MAHER, New York; from the Surgeon-General's Office, Major JOHN E. DAUGHERTY, Brooklyn.

To Camp Upton, L. I., N. Y., base hospital, Lieut. MAXIMILIAN A. RAMIREZ, New York. For duty, from Army Medical School, Lieuts. WILLIAM J. CARROLL, Brooklyn; JAMES J. FITZGERALD, New York.

To Camp Wadsworth, Spartanburg, S. C., for duty, from *Fort Oglethorpe*, Lieut. LAWRENCE M. HACKETT, Bolivar.

To Camp Wheeler, Macon, Ga., base hospital, Capt. CHARLES L. VAUX, Central Islip, L. I.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army *Medical School, Lieut.* VINCENT G. SMITH, *Staten Island; from Fort* Sill, Capt. LOUIS H. NAHUM, New York.

To Fort Logan, Colo., for duty, from Fort Riley, Lieut. WILLIAM E. CAMPBELL, New York.

To Fort McPherson, Ga., for duty, from New York City, Lieut. NEIL C. STEVENS, New York.

To Fort Moultrie, S. C., for duty, from Washington, D. C., Capt. STEWART S. PIPER, Elmira.

To Fort Oglethorpe, for instruction, Capts. JAMES B. THOMPSON, Amsterdam; ALBERT F. GRIFFITHS, Brooklyn; CHARLES P. HUTCHINS, Kingston; ALBERT DeF. YOUNG, Maysville; Lieuts. FRANCIS B. MAGUIRE, DANIEL F. O'KEEFE, Albany; PATRICK J. FITZGIBBONS, Amsterdam; EARL B. STEDMAN, Attica; WILLIAM B. AGAN, WILLIAM H. FIELD, CHARLES V. O'BRIEN, Brooklyn; ARTHUR F. GLAESER, Buffalo; THOS. L. McNAMARA, Corning; MORRIS H. NEWTON, Earlville; LESTER P. HOOLE, Eastport; FRANK H. CARBER, Forest Hills, L. I.; EARL L. EATON, Frankfort; WALTER J. FARRELL, Johnson City; LEONARD K. STELLE, Kingston; EDWIN A. CAMERON, STUART L. CRAIG, DAVID B. GILLIAM, FRANKLIN W. RICE, SIMON STEIN, New York; RAYMOND J. DEVINE, Syracuse; JOHN J. LEARY, Utica; MICHAEL J. J. COLUCCI, Yonkers; from duty as a private, Lieut. STEPHEN J. SPITZER, New York.

To Fort Riley with the board examining the command for nervous and mental diseases, from Camp Cody, Lieut. ABRAHAM M. RABINER, Albany; from Camp Greene, Capt. GEOFFREY C. H. BURNS, Central Islip, L. I.

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. THOMAS F. BERBEROVICH, New York.

To Fort Wadsworth, N. Y., for temporary duty, and on completion *to his proper station*, from New Haven, Lieut. FRANK C. BALDERREY, *Ithaca*.

To Hoboken, N. J., for duty, from Camp Custer, Capt. JAMES LeR. HONDORF, Rochester; from Williamsbridge, Lieut. JACOB SACHS, Rochester. For sanitary inspection and *on completion to his proper station*, Major HARRY PLOTZ, Brooklyn.

To Knoxville, Tenn., University of Tennessee, to make physical examinations and give medical attention to drafted men, *and on completion to his proper station*, from Fort Oglethorpe, Lieut. LEO JACOBS, Brooklyn.

To Newark, Del., Delaware College, to make physical examinations and give medical attention to drafted men, and on compdetion *to his proper station*, from Fort Oglethorpe, Lieut. MILTON ARONOWITZ, Albany.

To Newark, N. J., Newark Board of Education, Central High School, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. HAROLD GROSS, New York City.

To New Haven, Conn., for duty, Capt. MONTGOMERY E. LEARY, Rochester.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Lee*, Petersburg, Va., *base hospital*, Lieut. ALEXANDER McG. FOSHEE, Brooklyn.

To Plattsburg Barracks, N. Y., for duty, Lieut. MARTIN A. MURPHY, Hoosick Falls; from Camp Sherman, Lieut. ASA L. LINCOLN, New York.

To Richmond, Ind., Richmond Commercial Club, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. GEORGE J. HOGBEN, Rye.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Capt. EUGENE F. CONNALLY, Troy. For instruction in the treatment of infected wounds, and on completion *to Camp Devens,* Ayer, Mass., base hospital, Lieut. WILLIAM H. HAWKINS, New York. On completion *to Camp Dix*, Wrightstown, N. J., base hospital, Lieut. ALFRED G. LANGMANN, New York. On completion *to Camp Sevier*, Greenville, S. C., base hospital, Major THEW WRIGHT, Eden Center. On completion *to Camp Upton, L. I., N. Y.*, base hospital, from New York, Capt. WILLIAM H. W. KNIPE, New York. On completion *to Camp Wheeler*, Macon, Ga., base hospital, Capt. HORACE B. PRITCHARD, Syracuse. On completion *to his proper station*, from Camp Dix, Capt. HARRY P. MENCKEN, Long Island City.

To Savannah, Ga., State Industrial College, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. MILTON E. GREGG, Mottville.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Camp Crane, Lieut. CHARLES T. OLCOTT, New York.

To Yonkers, N. Y., Saunders Trade School, to make physical examinations, and to give medical atention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. MONROE B. KUNSTLER, New York.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CHARLES C. OSBORN, Albany; RAYMOND C. CONKLIN, Buffalo.

The following order has been revoked: *To Newport News, Va.*, for duty, Lieut. EDWARD R. WARE, New York.

North Carolina

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. FLOYD C. SHUGART, Albemarle.

To Fort Barrancas, Fla., for temporary duty, from Camp Shelby, Lieut. MICHAEL SALIBA, Wilson.

To Fort Oglethorpe for instruction, Capts. JAMES A. ANDERSON, Gastonia; JOSEPH J. SAUNDERS, Williamston; Lieuts. GARLAND V. GREEN, Advance; JESSE M. RUSSELL, Canton; PHILIP S. EASLEY, Statesville; FRANK L. THIGPEN, Tarboro.

To Hoboken, N. J., base hospital, from Camp Greene, Capt. JAMES M. COVINGTON, Jr., Wadesboro.

North Dakota

To Camp Beauregard, Alexandria, La., as orthopedic surgeon, from Boston, Lieut. JAMES F. HANNA, Fargo.

To Camp Bowie, Fort Worth, Texas, for duty, from Fort Riley, Lieut. JOHN W. NEWLOVE, Minot.

To Camp Grant, Rockford, Ill., base hospital, Capts. MARTIN P. RINDLAUB, Fargo; ROBERT D. CAMPBELL, Grand Forks.

To Fort Oglethorpe for instruction, Lieuts. LEROY SANTE, Ellendale; WILLIAM L. COWPER, Michigan.

To Fort Riley, base hospital, Capt. OTTO W. McCLUSKY, Carrington.

Honorably discharged, Lieut. EDMUND C. STUCKE, Garrison.

Ohio

To Camp Custer, Battle Creek, Mich., for instruction, and on completion *to Camp Sherman*, Chillicothe, Ohio, with the board examining the command for nervous and mental diseases, Lieut. TEDREW S. KEYSER, Cleveland.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. FRED C. HUNT, Girard; JOHN D. SIDDALL, Kalida; WALTER J. WEISER, Marion; from Fort Wayne, Major EDWARD D. JINKS, Lima.

To Camp Jackson, Columbia, S. C., base hospital, Lieuts. MOSE S. GRIFFITH, Batavia; HARRY M. SAGE, Columbus.

To Camp Lee, Petersburg, Va., base hospital, Capt. GEORGE GILL, Elyria.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Capt. IRVING S. WORKMAN, Mount Vernon; Lieuts. EDGAR P. COOK, Granville; RAYMOND C. SCHUTTE, Kenton.

To Camp Sherman, Chillicothe, Ohio, with the board examining the command for nervous and mental diseases, from Fort Thomas, Lieut. AVONIA E. KISER, Cincinnati.

To Camp Upton, L. I., N. Y., as orthopedic surgeon, from Boston, Lieut. MARTIN E. HARRELL, Woodstock.

To Camp Wadsworth, Spartanburg, S. C., with the board examining the command for nervous and mental diseases, from Camp Wheeler, Lieut. HARRY H. McCLELLAN, Dayton.

To Camp Wheeler, Macon, Ga., base hospital, Capt. WILLIAM E. SAVAGE, Cincinnati.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. CHARLES L. MAXWELL, Columbus; from Camp Sherman, Capt. JOHN W. SHEETZ, Columbus; from Williamsbridge, Lieut. JOHN H. NICHOLS, Columbus.

To Fort Adams, R. I., for duty, from Fort Oglethorpe, Capt. JULIAN V. WINANS, Madison.

To Fort H. C. Wright, L. I., N. Y., for duty, from Fort Oglethorpe, Capt. HIRAM P. H. ROBINSON, Medina.

To Fort Oglethorpe for instruction, Capts. JESSE T. McCARTNEY, Barnesvile; HOWARD F. SCHELL, Cincinnati; HARRY B. DORNBLASSER, Springfield; Lieuts. COURTLAND B. MEUSER, Ashland; HENRY R. BROWN, Chillicothe; EDW. C. MYLETT, FRANCIS J. OSBORNE, Cleveland; HUGH J. SAVAGE, Corning; DAN M. SKINNER, Hamilton; SAMUEL C. CALDWELL, Lancaster; CLARENCE M. VALENTINE, Linden Heights; LEW H. HAUMAN, West Cairo; ELMER H. NAGEL, Youngstown.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Princeton, Lieut. MARTIN H. URNER, Cincinnati.

To New York City, Cornell Medical College, for duty, and on completion *to Hoboken, N. J.*, for duty, from Camp Dix, Major RALPH W. HOLMES, Chillicothe.

To Plattsburg Barracks, N. Y., for duty, Lieut. HARRY R. BROWN, Chillicothe.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, Lieut. FOY C. PAYNE, Springfield. For instruction in laboratory work, and on completion *to Hoboken, N. J.*, base hospital, from Camp Gordon, Capt. ROY F. DRURY, Akron.

To South Baltimore, Md., for duty, from Fort Oglethorpe, Lieut. CLIFFORD P. KROHN, Morrow.

Oklahoma

To Camp Custer, Battle Creek, Mich., base hospital, from Camp Grant, Capt. ANTONIO DeB. YOUNG, Oklahoma City; from Camp Pike, Lieut. JAMES C. HAWKINS, Blackwell.

To Camp Dodge, Des Moines, Iowa, for duty, from Boulder, Colo., Lieut. DAVID C. WILLIAMS, Luther.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. ARCHIE BEE, Oklahoma City.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capts. ARTHUR W. WHITE, Oklahoma City; WILLIAM A. COOK, Tulsa; Lieut. WILLIAM R. LEVERTON, Hobart; from Camp MacArthur, Capt. GREGORY A. WALL, Tulsa.

To Fort Oglethorpe for instruction, Capts. LEANDER A. RICE, Oklahoma City; THOMAS C. McCURDY, Purcell; ALBERT M. CHAMBERS, Quinton; Lieuts. JOHN H. PAYNE, Durham; JOHN V. ANDERSON, Fairview; JAMES W. PROWELL, Ketchum; P. R. DAVIS, Noble; GAYFREE ELLISON, Norman; JOSEPH B. SHANNON, Pauls Valley; STANLEY B. JONES, Sallisaw; GEORGE A. WESTFALL, Supply.

To Fort Riley, as orthopedic surgeon, from Boston, Lieut. ALONZO P. GEARGART, Blackwell.

To Pocatello, Idaho, Technical Institute, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Riley, Lieut. GEORGE E. HARTSHORNE, Spire.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. THOMAS P. SHI, Blanchard.

Oregon

To Allesandro, Calif., Marsh Field, Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. CARL W. ROBBINS, Gold Beach.

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Riley, Capt. ROGER BISWELL, Haines.

To Camp Lewis, American Lake, Wash., base hospital, Capt. ERNEST A. SOMMER, Portland. For duty, Lieut. HAROLD T. ALLISON, Heppner.

Pennsylvania

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. PAUL C. BRUCE, Pittsburgh.

To Camp Crane, Allentown, Pa., for duty, from Camp Upton, Capt. WILLIAM L. ESTES, Jr., South Bethlehem; from Edgewood, Capt. ANDREW HUNTER, McKeesport.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Dodge; Lieut. ROBERT E. STRASSER, Reading; from Camp Greene, Lieut. SCOTT A. NORRIS, Homestead.

To Camp Devens, Ayer, Mass., base hospital, Lieut. LOUIS W. KOHN, Plymouth.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Meade, Lieut. ISAAC H. SHELLY, Ambler. For duty, from Camp Wheeler, Capt. JACOB J. RUTBERG, Philadelphia.

To Camp Forest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. VINCENT J. GRAUTEN, West Chester.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. DANIEL J. LANGTON, Philadelphia. For orthopedic instruction, and on completion *to Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Lieuts. RAYMOND A. WOLFF, New Kensington; MORRIS A. COHEN, Pittsburgh; ALEXANDER J. McRAE, Wilkes-Barre. With the board examining the command for nervous and mental diseases, Lieut. IRA A. DARLING, Warren.

To Camp Grant, Rockford, Ill., base hospital, from Boston, Lieut. GEORGE M. ASTLEY, Philadelphia.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN H. MOSS, Archibald.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. MIECZYSLAW E. SMOCZYNSKI, Philadelphia.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. EDWIN E. BROPHY, Meadville; from New York City, Lieut. CHARLES S. FOX, Philadelphia.

To Camp Pike, Little Rock, Ark., as orthopedic surgeon, from Boston, Lieut. WILLIAM C. KELLER, New Bethlehem. For duty, from Army Medical School, Lieut. CLAYTON L. McCOY, Hastings.

To Camp Sevier, Greenville, S. C., base hospital, from New York, Lieut. ABRAHAM E. COLCHER, Philadelphia. For duty, from New York, Lieut. WILLIAM D. BAUN, Philadelphia.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieuts. LOUIS SELIGMAN, Philadelphia; WILLIAM E. RECTONWALD, Pittsburgh.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Shelby, Capt. THOMAS W. GRAYSON, Pittsburgh.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp Bowie, Lieut. FRED D. REYNOLDS, Pittsburgh.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Gordon, Lieut. CHARLES C. GANS, Chambersburg.

To Fort Moultrie, S. C., for duty, from Camp Laurel, Lieut. WILLIAM C. KESSLER, Philadelphia.

To Fort Oglethorpe as instructor, from Philadelphia, Major EDWARD MARTIN, Philadelphia; Capt. WILLIAM H. FURNESS, Wallingford. For instruction, Capt. JOHN R. OWENS, Pittsburgh; Lieuts. CHARLES E. SCHLAPPICH, Bernville; JOSEPH P. McCLAY, Chambersburg; GEORGE B. SICKEL, Chester; JOSEPH R. SWARTZLANDER, Doylestown; GEORGE A. TREIMAN, Harrisburg; ROSCOE Z. COPE, Hatfield; GEORGE F. CROTHERS, Linwood; JAMES R. DAVIS, McKees Rocks; JAMES L. SHOEMAKER, Norristown; FRANK B. BLOCK, DONALD B. COOVER, LEO. F. SCANLAN; RUDOLPH ALBERT WALTHER, Philadelphia; MARL A. BRAFORD, Pittsburgh; ROBERT L. ELLIS, York.

To Fort Porter, N. Y., for duty, from Washington, Capt. WILLIAM S. RUCH, Carlisle.

To Greensboro, S. C., to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. SAMUEL W. REEVES, Fawn Grove.

To Hoboken, N. J., for duty, from Camp Lee, Capt. STEPHEN W. TUNNELL, Philadelphia.

To Jersey City, N. J., William L. Dickson High School, to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. CLARENCE L. YOUNG, Peckville.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Jackson, Capt. HARRISON A. GREAVES, Philadelphia; from Fort Monroe, Capt. WILLIAM C. MEANOR, Beaver.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. EARL P. WICKERHAM, Pittsburgh.

To Plattsburg Barracks, N. Y., for duty, Lieut. WALTER J. LEAMAN, Leaman Place; from Fort McPherson, Capt. HARRY C. WESTERVELT, Pittsburgh.

To report by wire to the commanding general, Eastern Department, for assignment to duty, Capts. RICHARD G. BURNS, Pittsburgh; BENJAMIN R. KOHLER, Reedsville; Lieuts. JOHN L. HOFFMAN, Ashland; CHARLES E. LINDEMAN, Pittsburgh.

To Rockefeller Institute for instruction in the treatment *of infected* wounds, and on completion *to his proper station*, from Camp Hancock, Lieut. WAYNE L. SNYDER, Brookville.

To Sunbury, Pa., for duty, and on completion to his proper station, from Philadelphia, Lieut. CHARLES S. MILLER, Philadelphia.

To Washington, D. C.; for duty in the Surgeon-General's Office, from Camp Sherman, Major STANLEY M. RINEHART, *Pittsburgh. St.* Elizabeth's Hospital, for intensive training, from Camp Dix, Lieut. JOSEPH P. BOYLE, *Philadelphia.*

Porto Rico

To Camp Dodge, Des Moines, Ia., for duty, from Army Medical School, Lieut. AUGUSTINE R. LAUGIER, San Juan.

To Camp Meade, Admiral, Md., for duty, from Army Medical School, Lieuts. JUAN H. FONT, Barran Quitas.

Rhode Island

To Camp Custer, Battle Creek, Mich., for duty, Lieut. JOHN E. RUISI, Westerly.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Shelby, Lieut. CHARLES L. LYNCH, Providence.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Capt. ALLEN A. WEEDEN, Woonsocket.

South Carolina

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Capt. LOAMI J. SMITH, Ridge Springs.

To Camp Meade, Admiral, Md., from New York City, Lieut. LACY W. CORBETT, Bishopville.

To Fort Oglethorpe for instruction, Lieuts. DAVID A. BIGGER, Rockhill; CLAUDE C. LANGLEY, Travellers Rest; PAUL K. SWITZER, Union.

To report by wire to the commanding general, Southeastern Department, for assignment to duty, Capt. GASTON DE F. WILSON, Spartanburg.

To West Orange, N. J., Essex Vocational School, to make physical examinations, and give medical attention to the drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. JOHN M. BARNWELL, Florence.

South Dakota

To Camp Dodge, Des Moines, Ia., base hospital, Capt. GILBERT G. COTTAM, Sioux Falls.

To Camp Travis, Fort Sam Houston, Texas, as orthopedic surgeon, from Boston, Lieut. ALEXANDER O. FASSER, Belle Fourche.

To Camp Zacha[illegible] Ky., for duty, from Fort Riley, Lieut. JOHN C. [illegible]ke.

To Fort Oglethorpe for instruction, Lieuts. ELROY L. PARKE, Canton; FRANK H. STEWART, Kimball; FLOYD D. GILLIS, *Mitchell; OLAF HARALDSON*, Watertown.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. ELI M. MOREHOUSE, Yankton.

Tennessee

To Camp Crane, Allentown, N. J., base hospital, from New York, Lieut. LEONARD G. CROSBY, Memphis.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CHARLES Y. BAILEY, Baileyton.

To Camp Jackson, Columbia, S. C., for duty, and on completion *to Washington, D. C.*, for instructions, from Camp Hancock, *Capt.* LEE A. STONE, Memphis.

To Camp Logan, Houston, Texas, base hospital, Lieut. JESSE B. WHITE, Brownsville.

To Camp Meade, Admiral, Md., *as orthopedic surgeon, from* Boston, Lieut. CECIL E. WARDE, *Memphis. For duty, from Army Medical* School, Lieut. TATE B. COLLINS, Trezevant.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. ALBERT V. KEEBLER, Harriman.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, *Lieut.* WALTER W. WIDENER, Laurel Bloomery.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. HARRY M. WESTOVER, Pinson.

To Fort Oglethorpe base hospital, from Camp Cody, Lieut. GEORGE L. BI[illegible] *instruction*, Capts. JOHN B. SHOUN, Hamp[illegible]shville; Lieuts. DANIEL B. ENSOR, Carter [illegible], *Greenfield*; JOHN J. GREER, Knoxville; [illegible], Memphis; LEONARD W. EDWARDS, Nashville; MILTON E. CANNON, Riceville.

To Indianapolis, Ind., Arsenal Technical School, to make physical *examinations* and *give* medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Capt. *MARVIN* A. BLANTON, Union City.

To New Haven, Conn., for duty, Lieut. BAYARD SULLIVAN, Chattanooga.

To Washington, D. C., East Potomac Park, for duty, from Fort Oglethorpe, Lieut. HARRY M. WESTOVER, Pinson.

Texas

To Atlanta, Ga., University of Atlanta, to make physical examinations and *give medical* attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Capt. *EDWARD C. FOSTER*, Whitt.

To Camp Alfred Vail, Little Silver, N. J., for duty, from Army Medical School, Capt. W. AUDA VEE CASH, Abilene.

To Camp Bowie, Fort Worth, Texas, for duty, from Fort Riley, Lieuts. JOSEPH D. COLLINS, Arlington; REESE F. CURRIE, Manchaca.

To Camp Crane, Allentown, Pa., base hospital, from Hoboken, Lieut. CHARLES C. COOKE, Keene.

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Riley, Capts. FOSTER R. WINN, Alvin; DAVID C. WYLIE, Aspermont.

To Camp Grant, Rockford, Ill., with the board examining the command for nervous and mental diseases, *from Camp Custer*, Capt. CLEVE C. ODOM, Childress.

To Camp Logan, Houston, Texas, base hospital, Lieuts. JOHN R. RANSON, Cleburne; FRANK H. NEWTON, Dallas. For duty, from Fort Riley, Lieut. KINCY J. SCOTT, Temple.

To Camp Meade, Admiral, Md., for duty, from Camp Wadsworth, Lieut. ERNEST H. HAMILTON, Kilgore.

To Camp Newton D. Baker, Fort Bliss, Texas, base hospital, from Fort Bliss, Capt. THAD SHAW, San Antonio.

To Camp Travis, Fort Sam Houston, Texas, with the board examining the command for nervous and mental diseases, from Camp Sheridan, Lieut. CHARLES W. STEVENSON, Loraine.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. JOSEPH KOPECKY, El Campo.

To Chicago, Ill., Armour Institute of Technology, to make physical examinations *and give medical* attention to drafted men, and on completion *to his proper station*, from Fort Riley, Lieut. OZRO W. CUNNINGHAM, Valley View.

To Fort Oglethorpe for instruction, Lieuts. JAMES O. BUTLER, Banders; EARL H. NEWTON, Corsicana; *HENRY CLAY*, Dallas; JULES L. DELAMBRE, ARTHUR J. MYNATT, FRANK L. ROBBINS, Houston; MARVIN McT. LANDRUM, Lampasas; JOHN W. HARPER, Paducah; from Camp Travis, Lieut. EDGAR V. HENRY, Coleman.

To Fort Sam Houston, Texas, base hospital, Lieut. EDWIN M. SYKES, San Antonio.

To Fort Sill, Okla., base hospital, Capt. LUKE P. ALLISON, Brownwood. For duty, from Fort Oglethorpe, Lieut. THOMAS R. BEECH, Slaton.

To Jacksonville, Fla., for duty, from Everman, Texas, Capt. EUGENE W. R. WILLIAMS, Celeste.

To Mineola, L. I., N. Y., Signal Corps Aviation School, *for* duty, from Fort Worth, Texas, Major ALBERT F. BEVERLY, Austin.

To Princeton, N. J., Princeton University, for duty, from Camp Greene, Lieut. DANIEL H. BROOK, Travis.

To report by wire to the commanding general, Southern Department, for assignment to duty, Capts. WILLIAM S. LASATER, Aledo; PLEASE D. BARNHILL, Brenham; ISAAC P. SESSIONS, Rockdale; Lieuts. JOSEPH E. DILDY, Brownwood; SAMUEL S. McCRUM, Lone Oak.

To San Antonio, Texas, Aviation Section, Signal Corps, for duty, Lieut. SCOTT C. APPLEWHITE, San Antonio.

To Tallahassee, Fla., to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Oglethorpe, Lieut. GROVER C. FOX, Dallas.

Utah

To Camp Dodge, Des Moines, Ia., for duty, from *Fort Riley, Capt.* JOHN O. EVANS, Salt Lake City.

Vermont

To Camp Dix, Wrightstown, N. J., with *the board examining the* command for nervous and mental diseases, from Fort Porter, Capt. STEWART L. GOODRICH, Waterbury.

To Camp Forrest, Chickamauga Park, Ga., as orthopedic surgeon, from Boston, Lieut. ALBION A. CROSS, Williamstown.

To Fort Oglethorpe for instruction, Capt. WARREN J. HOWARD, Waitfield; Lieuts. CLARENCE L. GANNON, Burlington; MAURICE L. CHENEY, Lundonville.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Capt. WALTER J. WHITE, Middlebury.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Capt. JAMES M. HAMILTON, Rutland.

Virginia

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. JOHN M. RATLIFF, Marvin.

To Camp Custer, Battle Creek, Mich., base hospital, from Boston, Lieut. CHARLES W. MERCER, Richmond.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. DOUGLAS S. DIVERS, Rocky Mount.

To Camp Lee, Petersburg, Va., base hospital, Lieut. RUSSELL L. HADEN, Crozet.

To Fort Benjamin Harrison for duty, from Camp Sheridan, Major WILSON E. DRIVER, Norfolk.

To Fort Oglethorpe for instruction, Capt. LURTY N. HARRIS, Harrisonburg; Lieuts. *JAMES W. JORDAN, Ashland*; EDWIN H. CORNS, Gate City; ROBERT L. RHODES, Roanoke.

To Fort Wadsworth, N. Y., for temporary duty, and on completion *to his proper station*, from New Haven, Lieut. JAMES L. STRINGFELLOW, Norfolk.

To Hoboken, N. J., base hospital, from New York City, Lieut. PATRICK M. CARROLL, Richmond.

To New Haven, Conn., for duty, from duty as an enlisted man, Lieut. JAMES J. BARFIELD, Catawba Sanatorium.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM De H. FITZHUGH, Morrisville.

Washington

To Camp Custer, Battle Creek, Mich., for duty, from Camp Pike, Lieut. EARLE V. SHEAFE, Winlock.

To Camp Lee, Petersburg, Va., *as orthopedic* surgeon, from Boston, Capt. HERBERT Y. BELL, Centralia.

To Camp Lewis, American Lake, Wash., for duty, Capt. JOHN R. STEAGALL, Tacoma.

To Camp Zachary Taylor, Louisville, Ky., for duty, from *Army* Medical School, Lieut. LUTHER R. MOORE, Seattle.

To Chicago, Ill., Old South Division *High School, to make physical* examinations and give medical attention to drafted men, and on completion *to his proper station*, from Fort Riley, Lieut. HARRY MARTIN, Cashmere. Wendell Phillips High School, for the same duty, *Lieut.* WILLIAM A. MITCHELL, Colfax.

West Virginia

To Camp Bowie, Fort Worth, Texas, as orthopedic surgeon, *from* Boston, Lieut. EARL B. HENSON, *Charleston.*

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. CHARLES P. S. FORD, Hansford; *from Camp Upton, Capt.* HARRY G. STEELE, Weston. For duty, from *Fort Oglethorpe, Capt.* CECIL DENHEM, Bluefield. For orthopedic instruction, and on completion *to Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Lieut. CHARLES M. TRUSCHEL, Wheeling.

To Camp Greene, Charlotte, N. C., for duty, from Montgomery, Capt. EMMET R. BUCKLEW, Grafton.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. EARL B. GERLACH, Huntington.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. VICTOR L. GLOVER, Inwood.

To Fort Oglethorp [illegible] DWARD F. SHAFER, Huntington; Lieut. [illegible] Philippi.

To New York Cit [illegible] struction, and on completion *to his proper* [illegible] lan, Capt. HARRY M. LAVELLE, Littleton.

Wisconsin

To Camp Custer, Battle Creek, Mich., base hospital, Capt. HARLOW S. ROBY, Milwaukee.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CORNELIUS N. STUESSER, Oconomowoc.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Lieut. HAROLD KALLING, Black River Falls.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Riley, Lieut. FLOYD W. APLIN, Waukesha.

To Camp Meade, Admiral, Md., for duty, from Fort Riley, Lieut. PETER L. SCANLAN, Prairie du Chien.

To Fort Oglethorpe for instruction, Capt. ALLAN S. WHITE, Rice Lake; Lieuts. JENS ANDERSON, Racine; EDWARD L. GARNER, Rhinelander.

To Fort Porter, N. Y., for duty, from Ann Arbor, Capt. JOHN M. CONLEY, Oshkosh.

To Fort Thomas, Ky., with the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. CARLTON M. BEEBE, Sparta.

To New Haven, Conn., for duty, Lieut. ARTHUR A. PLEYTE, Delafield.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Upton, L. I., N. Y.*, base hospital, Lieut. ARTHUR T. JOHNSON, Sauk City.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. FRED D. JACKEY, Thorp.

To Whipple Barracks, Ariz., for duty, from Fort Riley, Lieut. RAYMOND N. NELSON, Horicon.

The folowing orders have been revoked: *To Camp Devens*, Ayer, Mass., as assistant to camp surgeon, from Hoboken, Major EDWARD J. BARRETT, Sheboygan. *To Fort Oglethorpe* for instruction, Lieut. LEO A. HOFFMANN, Milwaukee.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Free Aid for Service Families.—The Talent Workers Hospital, San Diego, announces that any families of men in the United States service may obtain free treatment from 11 to 12 daily.——The dental department of the College of Physicians and Surgeons, San Francisco, offers free medical and dental attention to wives and families of fighting men and to soldiers and sailors not under the jurisdiction of government hospitals.

Personal.—Dr. George H. Locke, Lockford, has been appointed a state fire warden.——Dr. Arthur M. Smith, Oakland, has resigned as superintendent of the Alameda County Hospital.——Dr. C. W. Bryant, Lamoine, physician for the Lamoine Lumber Company, fractured both bones of the right leg near the ankle in a hand car accident.——Dr. Robert A. Peers, Colfax, head of the state board of health, has been made assistant chief of the tuberculosis bureau of the American Red Cross in France.——Dr. Peter Janss, Los Angeles, is under treatment in a hospital in Los Angeles.——Dr. George S. von Wedelstaedt, Los Angeles, was exonerated of the charge of violation of the espionage act, June 10.——Dr. Samuel C. Kohs of Stanford University has been elected assistant professor of psychiatry in Reed College, Portland, Ore.

DISTRICT OF COLUMBIA

Society Incorporated.—The Senate, June 29, passed a bill incorporating the medical society of the District of Columbia. The incorporators named are: Drs. George Wythe Cook, Frank Leech, John W. Chappell, Edward G. Seibert, Philip S. Roy, Raymond T. Holden, Wilfred M. Barton, Edward Y. Davidson, John B. Nichols, Albert L. Stavely, Charles W. Frazoni, Henry C. Macatee, Daniel S. Lamb, Archie W. Boswell and J. Lawn Thompson.

Personal.—Dr. William Creighton Woodward, health officer of the District, has accepted the position of municipal health officer of Boston and will report for duty, August 1, succeeding Dr. Francis X. Mahoney, retired. Dr. Mahoney will resume private practice.——Dr. Isaac Stone, professor of gynecology in Georgetown University, has resigned after twenty-six years of service and has been succeeded by Dr. J. Thomas Kelly.——Drs. James M. Moser and John A. Foote have been appointed associate professors of pediatrics in Georgetown University.

Supervisions of Serums and Vaccines.—Ignorance or neglect, or both, on the part of a considerable number of druggists, with respect to the precautions needed for the preservation of the potency of serums, vaccines and other biologic medicinal reagents carried in stock, has led the health officer to issue a cautionary letter to all druggists in the district. Investigation showed prophylactic and curative agents of this group stored on the tops of counters and show cases, and in drawers and cupboards, mingled with chance assortments of other goods, without any effort whatsoever to keep them at any temperature other than the ordinary room or atmospheric temperature. Druggists have been urged to keep all such biologic agents in proper containers, in refrigerators, preferably in contact with the ice. Druggists unable to do this have been urged to discontinue the sale of such articles. Inspections will be made from time to time and unless the advice and caution given by the health officer prove effective an effort will be made to obtain legislation to meet the difficulty.

ILLINOIS

Illegal Practitioner Fined.—The Illinois Department of Registration and Education reports that J. F. White, Paxton, was fined $25 and costs for violation of the act in regard to the treatment of human ailments.

Chicago

Hospital Closed.—Health Commissioner Robertson, July 5, is said to have ordered the Lincoln Hospital, 4147 Lake Park Avenue, which has been operating without a license, to be closed.

Personal.—Dr. Wilbur E. Post has left Chicago as a member of the mission to Persia, which is headed by President Harry Pratt Judson of the University of Chicago.——Dr. William M. Harsha has been appointed superintendent of the Municipal Tuberculosis Hospital.——Dr. Jesse D. Payne was injured internally, July 5, when a Wilson Avenue express train crashed into a bumper at the Wilson terminal.——Dr. Halford J. Morlan fractured his right arm while cranking his automobile, June 30.——Dr. B. Barker Beeson has been reelected Grand Northern Praetor of the Phi Beta Pi Medical Fraternity.

INDIANA

Examinations Must Be in English.—The state board of medical registration and examination passed a resolution in January, discontinuing the translation of examination questions into foreign languages. The last questions to be printed in a foreign language were at the June examination of the board, for two graduates of the University of Athens, Greece, who had made application for the examination prior to the passing of this resolution.

Personal.—Dr. Orvall Smiley, Indianapolis, has been appointed a member of the Indianapolis City Board of Health and Charities.——Dr. Guthrie H. Wisener has been appointed by the city board of health, medical resident of the Indianapolis City Hospital and asistant to Dr. Herman C. Morgan, acting superintendent of the institution.——Dr. Marcus Ravdin has been elected president, Dr. Gardner C. Johnson, vice president, and Dr. Walter R. Cleveland, secretary, of the Evansville School Clinic for Indigent Children.

MARYLAND

New Buildings at the Marine Hospital.—Provision for improvements at the Marine Hospital, Baltimore, was recently made by Congress and plans for the new structures have been completed. These will include additional ward buildings, laboratories and kitchens, and will necessitate a considerable increase in the hospital staff. All civil employees of the government, injured in any way in the performance of their duties, may receive treatment at the hospital, in addition to members of the merchant marine, the Navy and the coast guard. Army men are also numbered among the patients. The present capacity of the hospital is 150 patients. This will be increased to 250. Surg. Charles W. Vogel, U. S. P. H. S., is director of the hospital.

For Blinded Soldiers.—Plans of far-reaching scope which will make Baltimore the center for the reeducation of all war-blinded soldiers were outlined by Col. James Bordley at a recent meeting held at U. S. Army General Hospital No. 7 at Evergreen. Colonel Bordley addressed the *members* of the Junior League and the alumnae of St. Timothy's and the Bryn Mawr schools, who have volunteered to serve as assistants to the professional teachers and directors of the work at Evergreen. In addition to the schoolrooms and workshops which are now going up at Evergreen, and which would embody all the latest and most practical ideas in the education of the blind, elaborate plans are being made for housing members of the families of the blind men who may come to Baltimore to visit them.

Personal.—Dr. George Walker, Baltimore, who went to France with the Johns Hopkins Hospital Unit, more than a year ago, has been detached from the unit and now has general supervision over social hygiene work in the three ports of entry of the American Expeditionary Forces.——Dr. Walter A. Baetjer, Baltimore, has been assigned to special service and is making a study of the prevention and treatment of "trench fever," which is one of the menaces to the health of the allied forces.——Capt. George L. Stickney, Baltimore, who has been ill in a hospital with trench fever, is rapidly recovering.——Dr. Mary R. Fleming, formerly of Baltimore, who was connected with a hospital at Tabriz, Persia, which was sacked recently by the Turks, is safe. It is understood that Dr. Fleming and her associates left Tabriz before the advent of the Turks.——Dr. Katherine T. Jones, Fullerton, has been appointed assistant superintendent of the Orthopedic Hospital, Philadelphia, from which she was graduated in 1914.——Dr. John R. Oliver, of the Henry Phipps Psychiatric Clinic, has been appointed special medical examiner for the supreme bench of Baltimore city, a new position created by the judges to assist in the administration of justice, especially in the criminal court.——Dr. Theodore A. Schaefer, a graduate of the University of Maryland, has been appointed a member of the staff of the Druid Sanatorium, Baltimore.

MASSACHUSETTS

Harvard Medical School Investigates Food Poisoning.—In the interests of food conservation, the Department of Preventive Medicine and Hygiene of the Harvard Medical School has made a special research problem of the determination of safe and unsafe foods, and desires to get in immediate touch with outbreaks of food poisoning and infections in order to obtain definite knowledge as to the origin of these cases. Physicians and health workers within a reasonable distance of Boston are therefore requested to telephone this department, Brookline 2380, charges reversed, immediately on the discovery of any cases of disease attributable to food in any way. An investigator, who will endeavor to establish the cause of the trouble, will be sent without expense to the community.

MISSOURI

Personal.—Dr. Theodore F. Frazer, Commerce, has been elected assistant physician of State Hospital No. 4, Farmington, to succeed Dr. Frank L. Long, who has resigned to enter the military service.

Milk Commission Officers.—At the meeting of the medical milk comissioners of Kansas City, June 3, Dr. George C. Mosher was elected chairman; Dr. Albert G. Hull, vice chairman, and Dr. Frank C. Neff, secretary.

Health Offices Move.—Under the reorganization of the Kansas City Health Department by Dr. Eugene H. Bullock, health commissioner and superintendent of the General Hospital, it is probable that every department of the board of health, excepting the Emergency Hospital, will be moved from the Water Works Building to the General Hospital building, and that the Emergency division will be moved to the city hall.

St. Louis

Clinics Opened.—Under the joint auspices of the St. Louis Tuberculosis Society and the City Hospital Department free night clinics for diseases of the chest have been opened at 1411 South Broadway and 1243 South Vanderventer Avenue, under the supervision, respectively, of Drs. Paul F. Kistner and Andrew C. Henske.

NEW JERSEY

Personal.—Dr. Elmer G. Wherry, Newark, who recently underwent a serious operation at Asbury Park, is recuperating.

New State Officers.—At the annual meeting of the Medical Society of New Jersey held in Spring Lake, June 25 and 26, the following officers were elected: president, Dr. Thomas W. Harvey, Orange; vice presidents, Drs. Gordon K. Dickinson, Jersey City; Philander A. Harris, Paterson, and Henry B. Costill, Trenton; recording secretary, Dr. Thomas N. Gray, East Orange (reelected); corresponding secretary, Dr. Harry A. Stout, Wenonah (reelected), and treasurer, Dr. Archibald Mercer, Newark (reelected). The president, Lieut.-Col. William G. Schauffer, M. C., N. A., Lakewood, was unable to be present, as he is on duty with troops.

NEW YORK

Three Counties Start Work on Tuberculosis Hospitals.—Ground has been broken for new tuberculosis hospitals in Broome, Rockland and Nassau counties. The contracts for the Broome County institution total $117,233. The hospital is being constructed at Chenango Bridge, several miles from Binghamton, and is to have seventy-five beds. The Rockland County Hospital will be located near Summit Park and will cost approximately $90,000. The Nassau County Hospital will be located on a 97 acre site near Farmingdale, and the contracts total $108,259.

Eight More Cities to Have Tuberculosis Clinics.—The state Charities Aid Association, which is assisting local public and private tuberculosis organizations to establish dispensaries for the medical oversight, assistance and supervision of tuberculous soldiers rejected from military service, has made arrangements with local organizations which will assure the opening of dispensaries in Hudson, Newburgh, Kingston, Binghamton, Auburn and Mount Vernon within a month. Approximately $2,500 a year is needed to secure a medical and nursing staff and to equip and operate a dispensary in the smaller cities of the state. Arrangements have been completed for the reopening of clinics in Cohoes and Auburn. In a series of villages and towns in Westchester County, plans are under way for occasional clinic service to be given by tuberculosis specialists of New York.

New York City

Women Urged to Study Medicine.—The Medical Women's Association of New York has initiated a campaign urging educated young women to study medicine.

Personal.—Governor Whitman has appointed Dr. Walter B. James head of the state commission for study of the feebleminded and their needs, which position was created through legislative enactment this year.

Lutherans Offer Hospital for Soldiers.—The board of directors of the Lutheran Hospital of Manhattan, July 2, passed resolutions offering their hospital building and equipment, without charge during the period of the war, to the government. The building has been open only a year and has accommodations for 100 patients. They have also offered a well-equipped nurses' home in the vicinity of the hospital.

Dr. Brown Acquitted of Charges by Health Commissioner.—After the hearing, July 5, at which Dr. Lucius P. Brown defended himself against the charges preferred against him by Mayor Hylan and Commissioner McBride, Health Commissioner Copeland expressed admiration for the official accomplishments of Dr. Brown. He admitted that the results of Dr. Brown's work were of value to the city and acquitted him of the charges alleging administrative mistakes.

Women Sought to Treat Gas Cases.—The Women's Overseas Hospital, which has now thirty women surgeons, nurses and aids in France, has been asked by the French government to send immediately fifty women to conduct a hospital of 300 beds to be established for the treatment of gas cases. Dr. Alice Gregory, who headed the civilian unit of the Women's Overseas Hospital, has resigned to go to the front to establish a dressing station. She will be succeeded by Dr. Marie K. Formad of Philadelphia.

Mount Sinai Unit at the Front.—The Mount Sinai Hospital Unit, designated as United States Base Hospital No. 3, has been established in a monastery near the front. Its staff consists of twenty-six officers, sixty-five nurses, 150 enlisted men, and several untrained women. Accommodations are provided for 1,500 patients. Mount Sinai Hospital and the American Red Cross provide the surgical supplies. The chief officers in the hospital are: Major Michael A. Dailey, commanding; Major George Baer, laboratory chief; Major Howard Lilienthal, chief surgeon; Major Herbert W. Celler, chief of the medical service, and Majors Edward Beer and Walter M. Brickner, surgeons.

OHIO

Personal.—Dr. Frances M. Hollingshead, Columbus, director of child hygiene in the state health department, has left on indefinite leave of absence to conduct child welfare work for the American Red Cross in France.——Dr. Howard A. Brown, Carroll, was operated on in the Protestant Hospital, Columbus, June 26, and is reported to be doing well.——Dr. Wade MacMillan, Cincinnati, has been appointed medical director of Miami University, Oxford.——Dr. John M. Withrow, Cincinnati, resigned, June 26, as chairman of the local district federal draft board on account of ill health.——Dr. A. Richard Kent, Springfield, sustained severe injuries of the leg in an automobile accident, June 20.——Commissioner Allen W. Freeman, Cincinnati, who has been head of the state department of health since last October has been called to military duty and Deputy Commissioner James E. Bauman will direct the work of the health department.

Extend Tuberculosis Hospitals of State.—Nearly one half of the counties and more than three fourths of the population of the state will be included in territory provided with tuberculosis hospitals, when temporary hospital district organizations effected within the past two weeks are carried to completion, the state department of health announces. Of the two newest tentative districts, one is composed of Wood, Hancock, Seneca, Crawford and probably Wyandot counties, and the other includes Jefferson and Belmont counties, with Tuscarawas, Harrison and Carroll counties as probable additional members. These districts were created under temporary organizations by the county commissioners involved, in meetings at Fostoria and Steubenville. Another district, comprising Ottawa, Sandusky, Erie and Lorain counties, with Huron County considering the question of joining, recently organized on a permanent basis, and decided to appropriate $125,000 for the construction of a hospital.

PENNSYLVANIA

New Dispensaries.—The state health board has decided to establish, without delay, thirty new dispensaries with the object of diminution and possible elimination of the menace of the transmission of venereal diseases.

Memorial Building Dedicated at Eaglesville.—A building, dedicated to the memory of the late Stanley V. Mastbaum, long a director of the Eaglesville Sanatorium, and erected at a cost of $15,000, subscribed by his friends, was turned over to the board of directors of the sanatorium, June 22. The structure, one of the largest of the group of buildings comprising the sanatorium, has a capacity of thirty beds and will be occupied by the more serious cases of tuberculosis.

Endow Beds in Military Hospital.—An entire ward of ten beds has been endowed for one year in Military Hospital No. 1, located near Neuilly, on the outskirts of Paris, by the Baldwin School at Bryn Mawr, in memory of Elizabeth Nicholl Hill. Other recent endowments have been: a bed for six months from St. Clement's Episcopal Church, Philadelphia; a bed for one year from the New Century Club, Philadelphia; a bed for one year from Mrs. J. William White, in memory of her husband, Dr. J. William White.

Philadelphia

Personal.—Dr. Jay F. Schamberg has been elected professor of dermatology of the Jefferson Medical College to succeed Dr. Henry W. Stelwagon, resigned.——Dr. Martin E. Rehfuss has been elected associate in medicine at the Jefferson Medical College.——Lieut. Walter J. Daly, member of the United States Medical Corps, has been reported by the British War Office as wounded while serving with a British force.——Dr. Joseph M. Asher has been appointed assistant surgeon to the Philadelphia General Hospital.

WEST VIRGINIA

Personal.—Dr. Page D. Barlow, McMechen, is reported to be critically ill at his home.——Dr. Uriah H. Debendarfer, Mannington, is under treatment at the Ohio Valley General Hospital, Wheeling.

Board Ruling Regarding Reciprocity.—At the April meeting of the West Virginia Public Health Council it was voted to cancel reciprocal relations with such states as continue to recognize medical colleges rated in Class C by the Council on Medical Education.

Entire Village Purchased for Sanatorium.—The town of Denmar, Pocahontas County, has been purchased by the state board of control and the land and buildings will be used by the state for the establishment of the new State Colored Tuberculosis Sanatorium, for which appropriation was made by the last legislature.

CANADA

Compulsory Vaccination.—The colonial secretary of the Dominion of Newfoundland has announced that residents of Nova Scotia or New Brunswick may not enter Newfoundland unless they have been successfully vaccinated within the last seven years.

Faculty Changes.—The University of Toronto announces that Dr. T. Brailsford Robertson, formerly professor of biochemistry and pharmacology in the University of California, San Francisco, has been appointed professor of biochemistry in the University of Toronto, and also, that Dr. John J. R. Macleod, formerly professor of biochemistry and physiology in the Western Reserve University, Cleveland, has been appointed professor of physiology in the University of Toronto.

New Manitoba Society Officers.—The annual meeting of the Manitoba Medical Association was held at Winnipeg, June 20 and 21, and the following officers were elected: president, Dr. George D. Shortreed, Grandview; vice presidents, Drs. G. Cansell and Daniel H. McCalman, Winnipeg; secretary, Dr. Hugh Mackay, Winnipeg, and treasurer, Dr. Sidney J. S. Pierce, Winnipeg. The association placed itself on record as being convinced of the benefit of the restrictions placed on the use and sale of alcohol in Manitoba.

Personal.—Because of the additional work caused by the call of the 19 year old class, two more medical boards have been formed in Manitoba, over which Lieut.-Col. H. Blanchard, and Dr. Charles A. Ritchie, Winnipeg, have been appointed to preside.——Col. Wilbert G. Fraser, Ottawa, has been appointed A. D. M. S., and placed in charge of the Petawawa Camp.——Dr. Henry F. MacKendrick, Galt, Ont., has returned home after more than a year's service with the Royal Army Medical Corps.——Captain Gunn of the Brant Military Hospital has been appointed medical superintendent of the Military Hospital of Newmarket under the invalided soldiers' commission.——Capt. Hibbert W. Hill, medical officer of health of London, Ont., has resigned to become director of the public health association of the state of Minnesota.——Dr. Robert Ferguson, London, has been elected president of the Ontario Medical Council.

GENERAL

Fund for Relief of Blind.—It is announced that a fund of $100,000, to be known as the permanent Blind Relief War Fund Foundation, has been sent to Col. James Bordley, Baltimore, director of the Red Cross Institute for the Blind.

A Warning.—Some time ago THE JOURNAL published a warning relative to the activities of a person working under the name of L. C. Sykora, who called on physicians relative to the purchase or maintenance of roentgen ray apparatus. The Liebel-Flarsheim Company of Cincinnati writes: "A local physician informs us that he called on them claiming that he represented our company and agreed to repair their x-ray machine. When this doctor next wanted to use this machine he claims that about $60 worth of platinum interrupter points had been taken off by this party."

New Officers.—At the annual meeting of the American Laryngological, Rhinological and Otological Society, Inc., the following officers were elected: president, Col. H. S. Birkett, M.D., Montreal; chairman, eastern section, Dr. Robert Lewis, New York City; chairman, southern section, Dr. Clifton M. Miller, Richmond, Va.; chairman, middle section, Dr. Otto J. Stein, Chicago; chairman, midwestern section, Dr. Claude E. Cooper, Denver; chairman, western section, Dr. John J. Kyle, Los Angeles; secretary, Lieut.-Col. William H. Haskin, West Point, N. Y.; treasurer, Dr. Ewing W. Day, Pittsburgh, and chairman, publication committee, Dr. George L. Richards, Fall River, Mass.

Bequests and Donations.—The following bequests and donations have recently been announced:

Women's Hospital in the State of New York, New York City, and the New York Dispensary, each $10,000 by the will of Miss Cornelia Beekman.

Cornell University, to continue the John Metcalf Polk scholarship in the Medical School, $5,000 by the will of Dr. William Mecklenburg Polk.

Lankeneau and St. Agnes Hospitals, Philadelphia, each $500 by the will of J. A. Muller.

University Hospital, Philadelphia, $3,000 for the Children's Orthopedic Ward. Philadelphia, College of Physicians, $500, by the will of Dr. Gwilym G. Davis.

Episcopal Hospital, Philadelphia, one half of a fund of approximately $90,000, contingent on the death of his widow, by the will of John C. Brown.

FOREIGN

Epidemic of Influenza.—The report came from London, July 2, that the influenza epidemic that has been so prevalent in Spain has entered England, is spreading rapidly, and has already reached the midland counties where schools have been closed and many mines are in danger of being shut down.

Memorial to Massei.—A portrait bust of the late F. Massei, professor of otorhinolaryngology at the University of Naples, was recently installed in the hospital where most of his work has been done. His "Manual on the Pathology and Treatment of the Larynx" has been translated into several other languages, and the list of his other works fills nearly a page in the Surgeon-General's Catalogue. He founded the *Archivi Italiani di Laringologia* in 1881.

Typhus in Portugal.—Late issues of *Medicina Contemporanea* of Lisbon state that the epidemic of typhus at Oporto is decreasing, only 288 cases having been reported during the latest week, which is forty-nine less than the preceding week. Dr. R. Frias, whose death we recently recorded, succumbed to this disease. Three cases were reported at Lisbon. At Oporto barracks are placed at the disposal of the persons compelled to leave the *ilhas* which are being burned down as fast as they are emptied. (These *ilhas* were described in Cortezo's report, summarized in The Journal June 29, 1918, p. 2059.)

Weeding Out the Tuberculous from the Italian Army.—Prof. E. Maragliano, member of the Italian upper house and of the council of the ministry of war, has been visiting five of the different centers for detailed examination of tuberculosis suspects. At each point he held conferences to which all the medical officers and other physicians in the vicinity were summoned. His purpose is to impress on all the absolute intention of the army and government to discharge from the army and to exclude from admittance to military service all who are suffering from tuberculosis, whatever its gravity or form. He will visit the four other centers of the kind in turn, thus completing the rounds of the *centri militari di accertamento per i tubercolotici.*

Influenza in Spain.—According to the *Medicina Ibera* of June 1, just received, the Spanish Public Health Service has announced that the epidemic prevailing at Madrid seems to be of grippal nature, and that no specific microbe has been isolated from the nasopharyngeal secretions. In the majority of cases the streptococcus and a gram-negative diplococcus of the catarrhalis type are all that is found. The disease is so mild that none are willing to have blood drawn for tests of specific agglutination. The governor of the Madrid province has established a scale of prices for a number of the commonly used drugs, after calling the druggists and wholesale dealers into consultation and taking an account of the stocks of the different drugs. The price list includes quinin, 1.5 pesetas per gram; sodium salicylate, 0.25 peseta; sodium benzoate, 0.5 peseta; aspirin (Bayer) 3 pesetas per tube, other makes 2.5 pesetas per tube; castor oil, 0.5 peseta per thirty grams. Penalties of from 500 to 5,000 pesetas can be imposed for infractions. These restrictions are said to have caused general indignation in the entire profession. In particular some deplore the distinction in price made between the imported and the home-made acetylsalicylic acid. The governor's decree seems to have been based on the assumption that the pharmacists would practice extortion on account of the prevailing epidemic, and this is regarded as an insult to the profession. (A peseta is about 20 cents.)

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Uruguayan Hospital at Paris.—The *Revista Medica del Uruguay* announces that the government has granted a monthly appropriation of 300 pesos to the Hospital Franco-Uruguayo recently organized at Paris by Uruguayan residents of France.

Child Welfare Congress.—The Second Pan-American Child Welfare Congress (*del Niño*) is to be held at Montevideo next December. Prof. L. Morquio is president of the committee of the organization, and reports that the arrangements for it are well under way.

De Castro at Montevideo.—The dean of the medical school of the University of Rio de Janeiro, Dr. A. de Castro, is also honorary professor of the University of Montevideo. He recently delivered two lectures there as the guest of the Uruguay Medical Association, and receptions and excursions in his honor were given by the local medical society and the Club Medico del Uruguay. The subjects of his addresses were "The System of Paraglandular Organs" and "Observations of a Neuropathologist."

PARIS LETTER

Paris, June 14, 1918.

Vocational Schools of the Union of Foreign Colonies in France

This organization, founded for the care of war victims, and whose membership comprises the best known members of the allied and neutral colonies, celebrated recently the second anniversary of the foundation of the oldest of its five establishments: l'Ecole de rééducation professionelle du Grand Palais. On this occasion a fête was held at the Grand Palais for the students of the school at which were present the professors, former students, the members of the Council of Administration of the union, delegates from other educational schools of the union, and the resident pupils of the other establishments, at the quai Debilly, Maison-Blanche, Invalides and the agricultural school at Juvisy. Important addresses were made, among them one by M. Ladislas Kone, one of the administrators of the Ecole du Grand Palais, and one by M. Walter V. R. Berry, president of the union, in which it was stated that having started with eight courses or ateliers of reeducation, the school now has twenty-five; the number of students has increased in two years from thirty-nine to 350, and since its foundation, 1,592 wounded and disabled soldiers have been given vocational training. But that is not all. By its influential connections in industrial and commercial circles, the union has also helped these people to secure advantageous employment or start in a modest business for themselves. One maimed soldier, for example, a former mechanician, is now assistant director of a cinema film factory at London, with a salary of 700 francs per month.

Centers of Medical Instruction

Two centers of medical instruction have been created for the duration of the war, one in Paris, the other in Lyons, for medical students now in the army. Students who have been at the front since August, 1914, will be sent to these instruction centers, among them the students of the first year (who have taken the second inscription), and of the second and of the third year as far as the second examination of the "third doctorate" exclusively.

Rank for Medical Students

The undersecretary of state of the Service de Santé militaire has ruled that medical students who have had eight inscriptions validated before Dec. 1, 1914, will be appointed *médecins aides majors* of the second class, provided they have served in the army for two years; one year as *médecin auxiliaire* at a medical post or in a sanitary formation of the *zone de l'avant,* and that they have successfully passed an examination testing their aptitude.

Medical Care of War Invalids

Measures have been taken by the authorities to permit war invalids, disabled soldiers and pensioners to receive at any military hospital the treatment necessary for their recovery.

Medicinal Plants

France imports thousands of tons of medicinal plants, representing a value of several tens of millions of francs. The Comité des plantes médicinales, recently appointed by the minister of commerce, is of the opinion that France should produce as far as possible all of the necessary medicinal plants, and therefore it is instructing the public at large concerning the harvesting and drying of the medicinal plants most commonly used, such as poppy petals, cherry peduncles, and linden flowers.

American Red Cross Child Welfare Work at Marseilles

The American Red Cross, in order to direct the attention of the people of Marseilles to the well-being, health and development of the children, has organized conferences, at which moving pictures are shown, thus instructing parents and children in principles of hygiene that will safeguard the health of the little ones. The mothers are urged to bring their babies to daily consultations where the children are examined by specialists. The result of the examination is recorded in a health bulletin which is given to the mother free. A hygienic exhibit has also been organized; nor has the physical education of the children been neglected. A playground has been built, occupying a considerable area, in which all necessary apparatus for play and physical training has been installed.

Bombardment of Hospitals

May 28, the German aviators deliberately bombed hospitals located several kilometers behind the front, in which were half a score of sick and wounded Americans, as well as several hundred wounded and sick French soldiers. A number of the patients were wounded by glass fragments. One French nurse was killed, another was mortally wounded, and several civilians were killed. Three Canadian hospitals also have been partly destroyed by German aviators since May 19. A large number of the wounded were killed or wounded again. Many bomb fragments fell into the wards. Barracks and cantonments have been either destroyed or damaged during these aerial raids by the Germans; neither the presence of women nor of the sick and wounded has deterred them from carrying out their work of tragic destruction.

Assassination of Professor Pozzi

Dr. Jean Samuel Pozzi, professor of clinical gynecology in the Paris Faculté de médecine, was assassinated in his consulting room on the evening of June 13 by a man on whom he had operated about two years ago. The man was a petty official who had been cured, or, at least, saved from a grave complication, but he feared a relapse and believed that another operation should be performed. He wrote several letters to Dr. Pozzi, and as he became more and more insistent on having an interview with Pozzi, the latter wrote that he would see him on the evening of the 13th. It was during this interview that the assassin fired four shots at Pozzi and then turned the weapon on himself, shattering his left temple. One of the bullets entered Pozzi's abdomen, producing multiple penetrating wounds of the intestine. The patient was at once conveyed to a hospital installed in the Hotel Astoria and was operated on by Dr. de Martel in the presence of M. Clemenceau, the premier, a close friend of Pozzi. Unfortunately, the nature of the wounds was such that Pozzi died during the operation.

Pozzi was born, Oct. 3, 1846, in Bergerac, in southwestern France. He was the son of a clergyman of the Reformed church. He received his doctorate degree in medicine in 1873. Two years later he was appointed associate on the Paris Faculté de médecine, and in 1877 surgeon to the hospitals. In 1901 he was made professor of clinical gynecology, a chair created especially for him. He wrote a number of works, touching not only on gynecology but also on general surgery. His book, "Traité de gynécologie clinique et opératoire," has been a great success since its first edition, which was published in August, 1890, and was sold out in February, 1891. This book was awarded the Godard prize of the Académie des sciences in 1890, and the Huguier prize of the Académie de médecine in 1892. It was translated into several foreign languages, among them English. Pozzi was elected a member of the Académie de médecine in 1896, serving as vice president in 1918. Pozzi always took an interest in politics, and for nine years he was the representative in the senate of his native province, the Dordogne.

LONDON LETTER

LONDON, June 11, 1918.

Interallied Food Supplies

Last November, the interallied congress at Versailles appointed an interallied scientific food commission, consisting of two delegates from each of the four countries, America, England, France and Italy. A delegate representing Belgium has since been added. The object of the commission is to consider all questions affecting the supply of food to the various allied countries, in agreement with the allied food executives (which determine the division of food among the Allies), and to make recommendations to their respective governments. The delegates have held two meetings, the first in Paris and the second in Rome, and they are now holding one in London. During their first two meetings they had to establish certain physiologic principles, such as the amount of food necessary for each man, and as a result, the amount of food necessary for each country. That involved the consideration of the population, in age and sex, in a way that would establish the food needs of each country. The next problem is the making of a census of the production of foodstuffs in each country. When the delegates have assured themselves of the correctness of these figures, they will then know what is the deficit that will have to be met by importation. In this way the commission will be able to advise the allied executives as to the amount actually necessary to be imported into each country. The meeting of the commission in London was opened by J. J. Thomson, O.M., president of the Royal Society, and the delegates present were: America—Russell H. Chittenden, professor of physiologic chemistry, Yale University, and Graham Lusk, professor of physiology, Cornell Medical School, director of Russell Sage Institute of Pathology, New York; France—Dr. E. Gley, professor at the Collège de France, member of the Academy of Medicine, and Dr. J. P. Langlois, professor of medicine, Paris, member of the Academy of Medicine; Italy—professor Bottazzi, director of the Institute of Physiology, University of Naples, and Professor Menozzi, director of the School of Medicine, Milan; Great Britain—Dr. Ernest H. Starling, F.R.S., professor of physiology, University College, London, and Mr. T. B. Wood, Fellow of Conville and Caius College, Drapers Professor of Agriculture in the University of Cambridge; Belgium—Dr. H. Rulot, inspector of health and hygiene in the Belgian Ministry of the Interior.

American Wounded at Windsor

The king has given permission for a hut hospital to be built, according to the latest design, in Windsor Great Park, near his castle, for the benefit of American wounded, who are to be brought to England for treatment. A fully equipped hospital of 500 beds is the splendid gift which the Joint War Committee of the British Red Cross Society and the Order of St. John has decided to present to the American Red Cross. The site of the new hospital has a fine view of Windsor Castle, and it is hoped that the institution will be ready early in the autumn. The gift has been accepted by Major Endicott on behalf of the American Red Cross.

The Future of the Medical Profession Under a Ministry of National Health

It is remarkable that while this country is engaged in the greatest of all wars, in its struggle on which depends not only its future but also the future of civilization, such questions as the future relation of the medical profession to the state should be calmly discussed. It shows a spirit of confidence very different from the vaingloriousness of the Germans, one which resembles that of the other great world empire of the past comparable to it in many ways. It may be remembered that when Rome was engaged in its life and death struggle with Carthage, and Hannibal was defeating her armies and overrunning her territory, the very ground under his feet was sold in Rome. At the Royal Society of Medicine the future of the medical profession under the ministry of health has been under discussion at several meetings. Sir William Osler has made a characteristic contribution to the subject and criticized the present condition of things severely. He said that the insurance, the tuberculosis, the syphilis, the maternity and the child welfare legislations have brought the state to the door of the physician; and willy-nilly, he has become in some measure a civil servant. Much of this legislation has lacked effectiveness owing to the timorous regard for the fetish of local authority. He hoped that a strong ministry of health would not be content with a guerilla warfare against such preventable diseases as tuberculosis and syphilis. With intellectual weakness in high places the profession has too often suffered the pace to be set by organized ignorance. For example, how many thousands a year does the King Edward Hospital Fund contribute to the pathologic and clinical laboratories of the London hospitals? What is the annual budget for pathologic work in each of the hospitals controlled by the Metropolitan Asylums Board? But the war has furnished the profession with a great lever in public health matters. He discussed three points. The first was the independence of the physician. A scheme with a formidable roll of inspectors, directors, administrators, secretaries and ministers had been suggested. But could a free-souled, self-reliant man exist as their executive officer? He did not see how that competition which has played such an important rôle in the life of the profession for 2,500 years was to continue with the whole population in a state service. His point was the relation of the state to research. There was an invincible prejudice against state aid which was peculiarly insular and Anglican. There were no grounds for this. Excepting Lister's work, practically all the first hand discoveries had been made by men in official harness, such as Griffith, Evans, Manson, Ross, Bruce and Leishman. The debt to the Local Government Board for its researches and preventive medicine was a hundredfold greater than to all the universities combined. His third point was the position of hospitals in the scheme. They were preparing for the change, and within a few years there should be a thoroughly working combination of the voluntary agencies with the state. The country hospitals had already placed their services most generously for the work in tuberculosis, in syphilis, and in child welfare. But to come into a national scheme there would have to be certain radical alterations in the arrangement of the staff. In many the tuberculosis officer, the syphilis expert, the neurologists under the pension boards, the maternity physician and the infant-welfare physician had been recognized, and special departments opened. The difficulty would be with the medicine and surgery, if there were to be paid consultants attached to ıe hospitals. He would speak of medicine only, as nowa- could grow surgeons anywhere. Not so the modern n, who had to be a man of much broader gage, and was harder to cultivate. To grow a good consultant, take a physician of 30 or thereabouts, make him a half-time man with a good salary, give him from eighty to 100 beds, with control of the outpatients and a staff of paid assistants. His hours in the hospital would be from 9 to 1, and his work would consist in seeing the special patients sent from the neighboring physicians, making the ward visit, and directing the work in the clinical laboratories. The afternoon would be occupied in private consultations and in country visits at fixed rates. What a godsend such a man would be in every county.

Marriages

Surg. Horace Evans Spruance, U. S. Navy, San Calif., stationed at North Island, to Miss Elise Johnson Whipple of Santa Ana, Calif., June 12.

Capt. Jerome Frank Strauss, M. R. C., U. S. Army, Chicago, on duty at Camp Logan, Texas, to Miss Lois Mary David of Chicago, June 7.

Capt. Walter Scott Wallace, R. A. M. C., Newport, Wash., to Miss Louise Estelle Boggs of Lewiston, Idaho, June 22.

William Gordon Lyle, New York City, to Miss Leontine de Sabla of San Mateo, Calif., and New York City, June 28.

Lieut. Elmer Walfred Seaburg, M. R. C., U. S. Army, to Miss Mabel Barbara Belsley, both of Peoria, Ill., June 5.

Lieut. Edward Chase Durgin, M. R. C., U. S. Army, to Miss M. Violet White of Newtonville, Mass., June 10.

Capt. William H. Smith, M. R. C., U. S. Army, to Miss Elsie Steer, both of Baltimore, at Philadelphia, May 14.

Loren Kenneth Meredith, Des Moines, Iowa, to Miss Irene Shadbolt Hix of Ludington, Mich., June 22.

Jesse T. Raines, Malesus, Tenn., to Miss Ruby H. Dillingham of Colorado Springs, Colo., June 19.

Frederick Bryton Little, Manayunk, Pa., to Miss Eleanor Derr Slingluff of Norristown, Pa., June 19.

William Francis Heslin, Jr., to Miss Marguerite Ursula Madden, both of New York City, June 29.

general indigna... Roland Black, to Miss Mary D. Bussey, both of
some deplore the distinction in price June 16.
imported and the home-made acetylsalicto Mrs. Henrietta W.
ernor's decree seems to have been bas23.
that the pharmacists would practice eock, Pa., to Miss Lillian
the prevailing epidemic, and this is r
the profession. (A peseta is about 20
Iiss Vera Eleanor Wallace

SOUTH AND CENTRAL AM
AND WEST Ilch, Kan., to Miss Ermon

Uruguayan Hospital at Paris.–
Uruguay announces that the goverrto Miss Margaret Gill, both
appropriation of 300 pesos to the
recently organized at Paris by Urugiss Addie Josephine Aicher,

Child Welfare Congress.—The S
Welfare Congress (*del Niño*) is Sarah M. Hoover, both of
next December. Prof. L. Morquio
mittee of the organization, and reposephine Lichtenstadt, both
for it are well under way.

De Castro at Montevideo.—The de
of the University of Rio de Janeiro, It Butterfield, both of New
honorary professor of the Universit
recently delivered two lectures there a-owenstein, both of New
guay Medical Association, and recer
his honor were given by the local Green, both of Louisville,
Club Medico del Uruguay. The s
were "The System of Paraglandular
tions of a Neuropathologist."

Deaths

Lieut.-Col. Frank C. Todd, M. C., N. A., Minneapolis, Minn.; on duty at Camp Dodge, Iowa; University of Minnesota, Minneapolis, 1892; aged 48; a Fellow of the American Medical Association; elected second vice president of the Association and chairman of the section on ophthalmology in 1913-1914; died in the Presbyterian Hospital, Chicago, July 4, from lobar pneumonia. Dr. Todd had been professor and chief of the department of diseases of the eye, ear, nose and throat in his alma mater since 1869; surgeon to the University of Minnesota, the Hill Crest Surgical, St. Barnabas, City, Northwestern, and Asbury hospitals; and Chicago, Milwaukee and St. Paul Railway Company. He was a member of the American Academy of Ophthalmology and Oto-Laryngology; president of the Minnesota Academy of Medicine in 1914, and the Hennepin County Medical Society in 1902. He was also the author of several monographs on subjects connected with his specialties and one of the collaborators of the American Encyclopedia of Ophthalmology.

Died in the Service
Lieut.-Col. Frank C. Todd, M. C., N. A., 1870-1918

William Mecklenburg Polk, New York City; College of Physicians and Surgeons in the City of New York, 1869; aged 73; a gynecologist of international repute; died in a sanatorium in Atlantic City, June 23. Dr. Polk entered the Confederate Army in 1861, and served throughout the Civil War. He began practice in New York City in 1869; was professor of therapeutics in Bellevue Hospital Medical College, from 1876 to 1879, professor of obstetrics and gynecology in the New York University from 1879 to 1898, and dean and professor of gynecology in Cornell University Medical College since 1898. He was a Fellow of the American Medical Association; president of the American Gynecological Society in 1896; president of the New York Obstetrical Society in 1884; president of the New York Academy of Medicine from 1910 to 1914; a member of the Continental Anglo-American Medical Society of Paris, and once its vice president, and one of the founders of the International Congress of Gynecology and Obstetrics. Since 1890, Dr. Polk had devoted himself entirely to gynecologic surgery.

Died in the Service
in France
Major George E. Hilgard, M. R. C. U. S. Army, 1877-1918

Lieut. Harold Sidney Morgan, M. R. C., U. S. Army, San Diego, Calif.; Johns Hopkins University, Baltimore, 1915;

aged 28; was killed in action in France, April 12. Before graduation he was assistant to Dr. Wilfred Grenfell on the hospital ship *Strathcona*, on the Labrador coast. He volunteered for war service in the autumn of 1917, and was sent to France with a reenforcement of the Presbyterian Base Hospital Unit No. 1. After a month at the base he was made medical officer of the Ninth Battalion Royal Irish Fusiliers, British Expeditionary Forces, and was on duty with this command until his death. On April 12, he was in one of the regimental aid posts at the front near Kemmel when a shell burst near, wounding him severely. While he was being carried into a dugout to receive first aid, a shell explosion buried him and the bearers.

P. A. Surg. Paul Tonnel Dessez, U. S. Navy, Washington, D. C.; University of Georgetown, Washington, D. C., 1897; aged 42; a Fellow of the American Medical Association; on duty with the United States Marine Corps in France; was killed at Chateau Thierry, about June 6. The Distinguished Service Cross was awarded posthumously to Surgeon Dessez for "organizing the service of caring for and evacuating the wounded in a most systematic and admirable manner, constantly exposing himself to the enemy, displaying extraordinary heroism, coolness and energy."

Major George Engleman Hilgard, M. R. C., U. S. Army, Belleville, Ill.; Washington University, St. Louis, 1897; aged 41; a Fellow of the American Medical Association; formerly captain and assistant surgeon, Illinois National Guard, assigned Fourth Infantry; a veteran of the Spanish-American War; who was sent to France, in the latter part of last year, and was on duty in the front lines, and as the result of a breakdown from overwork, was sent to a hospital in Paris; died there, June 25.

Charles B. Leonard, Detroit; Detroit College of Medicine and Surgery, 1904; aged 37; a member of the Michigan State Medical Society; instructor in chemistry in Detroit Medical College, and assistant to the chemist of Wayne County; who had been ill with pneumonia followed by empyema and diphtheria; died at his home, June 28, from embolism of the brain.

Died in the Service
AT CAMP SHERIDAN
MAJOR WOODS WALKER LYNCH,
M. R. C., U. S. ARMY,
1873-1918
(*See The Journal, June 29, p. 2046*)

Marie Louise White, Chicago; Northwestern University Woman's Medical School, Chicago, 1892; aged 48; a Fellow of the American Medical Association; an instructor in the Post-Graduate Medical School of Chicago, and one of the most prominent women physicians of the city; died at her home, July 6, from heart disease.

Floyd Russell Greene, Eureka Springs, Ark.; Washington University, St. Louis, 1876; aged 66; a Fellow of the American Medical Association; for many years an officer of the Carroll County Medical Society; president of the board of health of Eureka Springs; died at his home, June 17, from chronic nephritis.

Fred Conley Rice, Ripley, N. Y.; University of Buffalo, N. Y., 1902; aged 40; a Fellow of the American Medical Association; formerly health officer of Chautauqua County; while driving in his automobile over a grade crossing at West Cortland, June 21, was struck by a trolley car and instantly killed.

Washington G. Kishler, St. Marys, Ohio; Medical College of Ohio, Cincinnati, 1846; aged 94; a member of the Mississippi Valley Medical Association; a veteran of the Mexican War; died at his home, June 11, from lobar pneumonia.

William John Moore, Syracuse, N. Y.; New York University, New York City, 1880; aged 59; health officer of Cortland, N. Y., for twenty-one years; formerly coroner of Cortland County; died in the Syracuse Memorial Hospital, June 19, from septic pneumonia.

Claude Conwell Sackett, Laurel, Neb.; State University of Iowa, Iowa City, 1898; aged 43; a Fellow of the American Medical Association; for several years a member of the school board; while fighting robbers, June 18, was shot and died from his wounds, June 19, in a hospital in Sioux City.

William H. White, Otisville, N. Y.; Johns Hopkins University, Baltimore, 1907; aged 38; physician in charge of the Women's Unit of the New York City Tuberculosis Sanatorium, Otisville; died in that institution, May 9, from pulmonary tuberculosis.

James J. Smith, New Britain, Conn.; College of Physicians and Surgeons, Baltimore, 1888; aged 55; a specialist on diseases of the eye, ear, nose and throat; died in the Hartford Hospital, May 23, from cerebral hemorrhage.

Died in the Service
IN FRANCE
LIEUT. HAROLD S. MORGAN, M. R. C.,
U. S. ARMY, 1890-1918

Robert McDonald Shannon, Piqua, Ohio; Starling Medical College, Columbus, Ohio, 1896; aged 49; a Fellow of the American Medical Association; surgeon to the United States Steel Corporation, Piqua; died at his home, June 23, from cerebral hemorrhage.

E. Lee Branscome, Galax, Va.; University College of Medicine, Richmond, Va., 1901; aged 53; was found dead in his office, June 22, from the effects of morphin, believed to have been self-administered, with suicidal intent.

Wiliam Seymour Petrie, Fairview, Ky.; New York University, New York City, 1879; aged 61; who recently underwent operation for disease of the stomach; died at the home of his sister in Hopkinsville, Ky., June 20.

Brady O'Neill Williams, Martins Ferry, Ohio; University of Pennsylvania, Philadelphia, 1873; aged 71; a Fellow of the American Medical Association; died at his home, June 28, from cerebral hemorrhage.

Died in the Service
AT FORT OGLETHORPE, GA.
LIEUT. WILLIAM E. EMERY, M. R. C.,
U. S. ARMY, 1890-1918
(*See The Journal, last week, p. 57*)

Louis S. Tucholka, Chicago; Hering Medical College, Chicago, 1901; aged 43; who was awaiting trial for manslaughter on account of an alleged illegal operation; died in the hospital of Cook County Jail, June 28.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SILVOL INELIGIBLE FOR N. N. R.

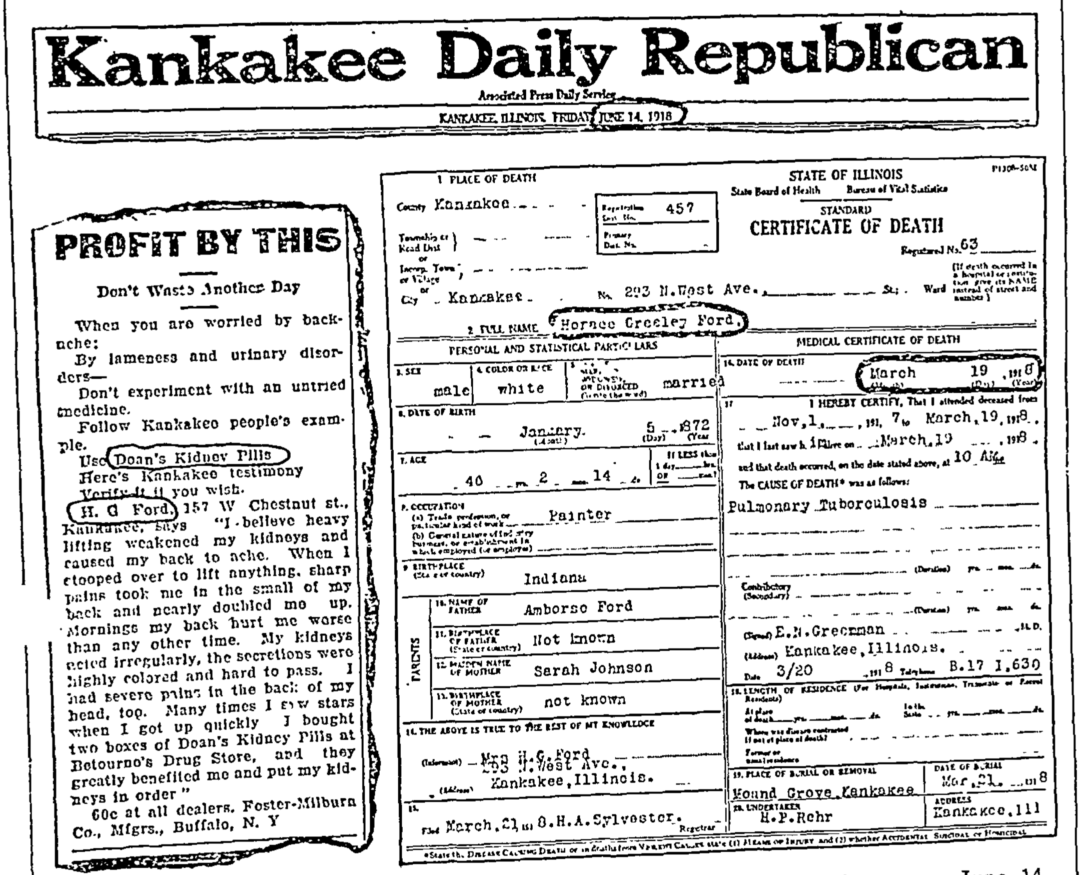
Report of the Council on Pharmacy and Chemistry

The following report on Silvol (Parke, Davis & Company) was adopted by the Council and its publication authorized.

W. A. Puckner, Secretary.

The Council took up the consideration of Silvol (Parke, Davis & Company) because of inquiries received. The following report was submitted by the referee in charge of silver preparations:

MORE TESTIMONY FROM THE TOMBS!



Kankakee Daily Republican

Associated Press Daily Service

KANKAKEE, ILLINOIS, FRIDAY JUNE 14, 1918

PROFIT BY THIS

Don't Waste Another Day

When you are worried by backache:

By lameness and urinary disorders—

Don't experiment with an untried medicine.

Follow Kankakee people's example.

Use Doan's Kidney Pills

Here's Kankakee testimony

Verify it if you wish.

H. G. Ford, 157 W Chestnut st., Kankakee, says "I believe heavy lifting weakened my kidneys and caused my back to ache. When I stooped over to lift anything, sharp pains took me in the small of my back and nearly doubled me up. Mornings my back hurt me worse than any other time. My kidneys acted irregularly, the secretions were highly colored and hard to pass. I had severe pains in the back of my head, too. Many times I saw stars when I got up quickly. I bought two boxes of Doan's Kidney Pills at Betourne's Drug Store, and they greatly benefited me and put my kidneys in order."

60c at all dealers. Foster-Milburn Co., Mfgrs., Buffalo, N. Y.

STATE OF ILLINOIS

State Board of Health Bureau of Vital Statistics

STANDARD

CERTIFICATE OF DEATH

Registered No. 63

1 PLACE OF DEATH

County Kankakee

Registration Dist. No. 457

Primary Dist. No.

Township or Road Dist. or Incorp. Town or Village or City Kankakee No. 293 N. West Ave. St.; Ward

(If death occurred in a hospital or institution give its NAME instead of street and number)

2 FULL NAME Horace Greeley Ford.

PERSONAL AND STATISTICAL PARTICULARS

3. SEX male

4. COLOR OR RACE white

5. SINGLE, MARRIED, WIDOWED, OR DIVORCED (write the word) married

6. DATE OF BIRTH January 5 1872 (Month) (Day) (Year)

7. AGE 40 yrs. 2 mos. 14 ds. If LESS than 1 day hrs. or min.?

8. OCCUPATION (a) Trade, profession, or particular kind of work Painter (b) General nature of industry, business, or establishment in which employed (or employer)

9. BIRTHPLACE (State or country) Indiana

PARENTS

10. NAME OF FATHER Amborso Ford

11. BIRTHPLACE OF FATHER (State or country) Not known

12. MAIDEN NAME OF MOTHER Sarah Johnson

13. BIRTHPLACE OF MOTHER (State or country) not known

14. THE ABOVE IS TRUE TO THE BEST OF MY KNOWLEDGE

(Informant) Mrs H. G. Ford 293 N. West Ave., Kankakee, Illinois.

(Address)

15. Filed March 21, 1918 H. A. Sylvester. Registrar

MEDICAL CERTIFICATE OF DEATH

16. DATE OF DEATH March 19, 1918 (Month) (Day) (Year)

17 I HEREBY CERTIFY, That I attended deceased from Nov, 1, 1917 to March, 19, 1918, that I last saw h[illegible] alive on March, 19, 1918, and that death occurred, on the date stated above, at 10 A.M.

The CAUSE OF DEATH* was as follows:

Pulmonary Tuberculosis

(Duration) yrs. mos. ds.

Contributory (Secondary) (Duration) yrs. mos. ds.

(Signed) E. M. Greenman M.D.

(Address) Kankakee, Illinois.

Date 3/20, 1918 Telephone B.17 I,630

18. LENGTH OF RESIDENCE (For Hospitals, Institutions, Transients or Recent Residents)

At place of death yrs. mos. ds. In the State yrs. mos. ds.

Where was disease contracted if not at place of death?

Former or usual residence

19. PLACE OF BURIAL OR REMOVAL Mound Grove, Kankakee

DATE OF BURIAL Mar. 21, 1918

20. UNDERTAKER H. P. Rehr

ADDRESS Kankakee, Ill

*State the Disease Causing Death, or in deaths from Violent Causes state (1) Means of Injury and (2) whether Accidental, Suicidal or Homicidal.

Mr. Ford's testimonial for Doan's Kidney Pills appeared in a Kankakee paper, June 14, 1918—nearly three months after he was dead and buried! "Follow Kankakee people's example. Use Doan's Kidney Pills," says the advertisement.

Silvol (Parke, Davis & Company) is a silver-protein preparation of the Argyrol type. Like Argyrol, it is said to contain about 20 per cent. of silver. The referee finds that, like Argyrol, it is nonirritant to the nasal mucosa in a 10 per cent. solution; does not precipitate with chlorid; dissolves in water readily; a 25 per cent. solution has a high specific gravity (Silvol, 1.137 at 20 C.; Argyrol, 1.147 at 20 C.), and is not very viscid (viscosity, 1.25). A 1:1,000 solution of Silvol is clear and about 50 per cent. deeper in color than a solution of Argyrol of the same strength.

Silvol differs from Argyrol mainly in that its solutions yield a fine precipitate with egg albumin (under suitable conditions), while Argyrol is nonprecipitant; and in that Silvol solutions are not so effectively decolorized by Lloyd's reagent.

The manufacturers did not reply to an inquiry with regard to the basis for the claims made for Silvol (see Appendix). The referee was therefore obliged to deduce these claims from the firm's advertising matter. About the same claims are made for the local use of Silvol as are generally made for Argyrol. These may be accepted without detailed evidence in view of the similarity of the two preparations.

Its usefulness, as suggested in the advertising, when given by mouth "in the treatment of acute or chronic gastritis, gastric ulcer, or gastro-enteritis," or the efficacy of very dilute solutions (0.2 per cent.) against dysentery, etc., is doubtful and requires substantiation by evidence. The claims that Silvol is astringent, though nonirritant and noncoagulant, that it is a "powerful germicide" or even that it is a "powerful antiseptic," and that it may be used with advantage wherever "a silver salt is indicated," need substantiation. There is no proof of the assertions that Silvol is "the most efficacious of silver salts"; "the most efficient silver antiseptic," and "the most remarkable organic silver compound. . . ."

As the manufacturers have not presented any evidence for their highly improbable claims, and as they have not signified any intention of making their claims agree with substantiated facts, it is recommended that Silvol be declared inadmissible to New and Nonofficial Remedies.

The Council adopted the report of its referee and authorized its publication.

APPENDIX

The following letter from the Secretary of the Council was sent to Parke, Davis & Company, March 20, 1917. No reply to it has been received:

> The referee of the Council who is conducting an investigation of silver preparations asked me to inquire if you are willing to submit your evidence for the following claims which are made in your circulars for Silvol:
>
> 1. How it is possible for the solution to be astringent, and at the same time nonirritant and noncoagulant?
> 2. That intestinal irrigation with a Silvol solution containing 10 to 15 grains to the pint is sufficiently bactericidal to "be used in the abortive treatment of such infectious processes as dysentery, cholera infantum, and colitis."
> 3. What evidence have you as to the degree of antiseptic and germicidal power of Silvol solutions?
> 4. What evidence have you as to the degree of antiseptic and germicidal power of 5 per cent. Silvol Ointment?
>
> A reply to the above questions and any other information in regard to Silvol will receive careful consideration.

Report on Sickness Prevention.—The National Industrial Conference Board, in Research Report No. 6, May, 1918, discusses the problem of sickness insurance and sickness prevention, quoting the figures of rejections for physical unfitness in connection with the draft as given out by U. S. Provost Marshal-General Crowder. The report also gives figures and facts brought out in various reports and investigations of industrial accident and injury and preventable illness, most of which have already been reviewed in The Journal. In connection with sickness insurance, the experience of various European countries, and of new Zealand and Australia is set forth, and recommendations are made with reference to the solution of the problem without giving the details of any definite plan. The report is a brief but valuable contribution to this timely subject, and may be obtained from the office of the board, 15 Beacon Street, Boston.

Correspondence

HOUSE ORGAN THERAPEUTICS

To the Editor:—My mail is frequently cluttered with pseudo-scientific data from various manufacturers of proprietary remedies which contain as much real scientific information as the *Police Gazette*. I am enclosing a sample page of such a periodical. The article has been so cleverly worded in the first paragraph, as to impress the unthinking with the idea that sodium cacodylate is superior to arsphenamin, when we know in reality that sodium cacodylate has been proved practically worthless in syphilis (*vide* "Venarsen"). One case is reported, in which twenty injections of sodium cacodylate were administered intravenously, from October 23 to December 14. On December 18, a Wassermann test proved negative, it had been strongly positive on October 20, but during the same interval from October 23 to December 14, the patient had been taking by mouth "Ricord pills" each containing half a grain of yellow iodid of mercury; granted that he had taken these pills regularly, during all that time, it might well be that the Wassermann would be sharply influenced by them. Again, a negative Wassermann in the midst of treatment proves little; it might be positive again in a few days. The article stimulates the further use of a product of known worthlessness in the treatment of syphilis. How any one can use sodium cacodylate in preference to arsphenamin in syphilis is beyond me. If I mistake not, the Propaganda Department has not taken up the matter of these various pamphlets of the drug companies, such as the *Doctor's Factotum, Therapeutic Notes*, etc., lauding to the skies such articles as "Seng," "Cactina Pillets," etc., *ad nauseam*. The saddest part of the whole thing is that it must bring returns from the unthinking, otherwise they would soon disappear, which would be a great relief for the scrubwomen who empty our waste baskets.

Paul E. Bechet, M.D., New York.

[Comment.—The "sample page" sent by Dr. Bechet is from the March-April, 1918, number of P. D. & Co's. *Therapeutic Notes*. It contains an "Original Communication" on "The Treatment of Syphilis with Sodium Cacodylate, by Adolph Lappner, M.D., Detroit, Mich." The "article" while nominally devoted to the praise of sodium cacodylate is virtually a puff for "Ricord Pills," a Parke, Davis & Co. product.]

THE CORRECT SHOWER BATH

To the Editor:—During recent visits to several camps and forts of the United States Army, I was surprised to discover that all showers were arranged perpendicularly, and that they were so built in accordance with the Quartermaster's Manual, second volume, page 351, despite the fact that the public bathhouses of this country have since their initiation in 1890 proved the absolute superiority of the oblique shower head (at an angle of 45 degrees).

There is no doubt in the minds of those who have given this subject any thought that while the vertical shower may serve equally well for cleansing, it fails in the equally if not more important object of the shower, to furnish the refreshment and invigoration produced by the forcible impact of water on the skin nerves, vessels and muscular structures. Since the latter depends on the force or pressure under which the water is delivered, it is obvious that this beneficent action is precluded because of the fact that no matter how strong the pressure the water falls with force only on the hairy scalps, from which it trickles on the body. The oblique shower, on the contrary, strikes the back, chest or sides, avoiding the head unless the head is intentionally exposed for cleansing.

The great enhancement of efficiency among our industrial workers and our soldiers derivable from the correctly constructed shower cannot at this time be too much emphasized or too quickly brought to the attention of the authorities.

That the antiquated shower head is still in use in the Army and other recently constructed public bath establishments is evidence not only of the force of habit but unfortunately also of the fact that the rationale of the action of water in health and disease is still a *terra incognita* among otherwise well informed men.

There is something more, indeed much more, in the shower bath than its cleansing in a sanitary way; just as there is something more in the cold bath in typhoid fever than temperature reduction (which happily is being recognized of late). That there is something far more important in thermic fever than reduction of abnormally high temperature has been painfully demonstrated by the largest statistics of an epidemic (648 cases) which I endeavored to utilize as a lesson (Principles and Practice of Hydrotherapy, William Wood & Co.) in 1898. And yet the fifteenth edition of the most popular American textbook on practice still teaches the heresy that reduction of temperature by the cold bath is the best treatment of thermic fever (although the German translation of the eighth edition has a footnote exposing this fallacy), and nearly every textbook on practice teaches the same fallacious and fatal treatment. It may be mentioned, incidentally, that the cold shower or affusion reduced the mortality from this disease from 38 to 6 per cent.

It is gratifying to state that the Surgeon-General of the United States Army, and its Quartermaster-General and the head of the Bureau of Industrial Housing, have taken cognizance of my appeal to them for correction of this physiologically incorrect construction of the shower.

Simon Baruch, M.D., New York.

"SODIUM VERSUS POTASSIUM"

To the Editor:—Your editorial in the issue of June 1 on "Sodium Versus Potassium" is both illuminating and suggestive, and illustrates the point that our boche friends have been working the American public in a manner that is shameful in this matter of the potassium salts. As you say, we are creatures of habit, and their clever propagandists have taken advantage of this to persuade us that the K salts are superior to those of the Na group, whereas, quite the contrary, the latter group is every bit as effective and less depressing. In order to obviate this fallacy I would suggest that you keep standing on your editorial page some such brief text as the following:

> American doctors should
>
> HELP WIN THE WAR
>
> by prescribing sodium salts for the States and let the Prussians prescribe potassium salts for Potsdam! Sodium is produced in America, is less depressing than potassium, is quite as effective, and is 50 per cent. cheaper!

You no doubt could influence other medical journals and also the chemical and pharmaceutical publications to follow your example and thus help materially in putting the Hun out of business.

William D. Byrne, M.D., Chicago.

ADVANTAGES GAINED BY SERVICE IN MEDICAL RESERVE CORPS

To the Editor:—Are there many of our young physicians hesitating about entering the service? The recent letter appearing in the medical press from the office of the Surgeon-General asking for more medical men has, I believe, met a generous response. However, having spent a week here as the guest of the surgical staff of the base hospital, I have been impressed with the advantages there are for those who enter the service. No postgraduate course can equal it. No clinic is as complete in system and organization. It is the realization of any physician's fondest hopes. It is going to give America a splendidly improved medical profession. It teaches a system of efficiency that will be an asset after returning to civil practice. It is surely worth the while.

J. Christopher O'Day, M.D., Camp Lewis, Wash.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PERMANENCE OF MEDICAL RESERVE CORPS, AND DETAILS OF ADMISSION

To the Editor:—1. Will the Medical Reserve Corps be disbanded entirely at the close of the war? If not, will the commissioned officers be given the opportunity of remaining in the service if they so desire?

2. Is it permissible for a commissioned officer of the United States Public Health Service to apply for a commission in the Medical Reserve Corps, or for examination for the Medical Corps of the Regular Army, without first obtaining permission to do so from the Surgeon-General of the Public Health Service?

3. Does the age limit for entrance to the Medical Corps (32 years) mean that an officer must be examined and be commissioned before he reaches his thirty-second birthday?

4. How long a time would probably elapse between the time of application for permission to take the examination for the Medical Corps of the Army and, in the event of success in the examination, the time of commission? How long between the date of application for commission in the Medical Reserve Corps and the date of assignment to active service?

5. If an officer makes known his preference for any branch of medical work or for foreign service, has he any assurance that this preference will be given consideration?

6. Does the recent act permitting commissioned officers of the Army to buy supplies from the Quartermaster's Department apply to officers of the United States Public Health Servic? Please omit my name.

S. S. C., South Carolina.

Answer.—1. The Medical Reserve Corps is a permanent organization. Physicians enlist for a term of five years, and at the end of that period can be recommissioned if they desire.

2. A commissioned officer of the United States Public Health Service should apply for permission to the Surgeon-General of that service before undertaking to secure a commission in another service of the government.

3. Presumably, yes; but probably the application would be favorably considered if the candidate was otherwise qualified.

4. Following the preliminary examination, applicants who are successful are appointed to the Reserve Corps with the rank of first lieutenant and ordered to active duty at the Army Medical School, Washington, D. C., for instruction as candidates for admission to the Medical Corps of the Army. The applicant is required to make an agreement to accept a commission in the Medical Corps, if found qualified in the final examination, for at least five years thereafter unless sooner discharged. Candidates under consideration receive the pay allowances of first lieutenants. A final or qualifying examination of the graduates is held by the Army Medical Board immediately after the close of the term of the Army Medical School. It covers the candidate's physical qualities, clinical skill and general aptitude for the service. If successful, he is at once given a commission in the Medical Corps.

5. After the acceptance of his commission in the Medical Reserve Corps, the officer will receive from the Office of the Surgeon-General a questionnaire on which he will be permitted to state his preference and aptitude for various branches of medical service and his special training in these branches. An endeavor will then be made to assign him to the work for which he is especially fitted.

PUBLICATIONS ON PSYCHIATRY, NEUROLOGY, CRIMINOLOGY AND PSYCHOLOGY

To the Editor:—I should be greatly pleased if you would furnish me with a list of the leading journals on the subjects of psychiatry, neurology, criminology and psychology; also a list of new books on these subjects.

R. M. C., Kansas.

Answer.—We give below a list of journals and books on these subjects:

American Journal of Insanity, quarterly, Johns Hopkins Press, Baltimore, $5.

American Journal of Psychology, quarterly, G. Stanley Hall, editor, Worcester, Mass.

Brain, the Macmillan Company, St. Martin's St., London, W. C., 16 shillings.

Journal of Abnormal Psychology, bimonthly, R. G. Badger, 194 Boylston St., Boston, $4.

Journal of the American Institute of Criminal Law and Criminology, bimonthly, Northwestern University Press, 31 W. Lake St., Chicago, $3.

Journal of Nervous and Mental Diseases monthly, 64 West 56th St., New York, $8.

Mental Hygiene, quarterly, National Committee of Mental Hygiene, 50 Union Square, New York, $2.

Psychological Bulletin, monthly, Psychological Review Company, Worcester, Mass.

Review of Neurology and Psychiatry, monthly, 20 S. Frederick St., Edinburgh, 25 shillings.

Adler, A.: Study of Organ Superiority and Its Psychical Compensation, Nervous and Mental Disease Publishing Company, 64 West 56th St., New York, $1.50.

Adler, A.: The Neurotic Constitution, Moffat, Yard & Co., 116 West 32d St., New York, $3.

Bronner, A. F.: The Psychology of Special Abilities and Disabilities, Little, Brown & Co., Boston, $1.75.

Estabrook, A. H.: Jukes in 1915, Carnegie Institution, Washington, D. C., $2.50.

Healy, W.: Mental Conflicts and Misconduct, Little, Brown & Co., 34 Beacon St., Boston, $2.50.

Healy W., and Healy, Mary T.: Pathological Lying, Accusation and Swindling, Little, Brown & Co., Boston, $2.50.

Healy, W.: The Individual Delinquent, Little, Brown & Co., Boston, $5.

White, W. A.: Mechanism of Character Formation; An Introduction to Psychoanalysis, the Macmillan Company, 66 Fifth Ave., New York, $1.75.

THE "ITALIAN CONSUMPTION CURE"

To the Editor:—Will you please let me know through The Journal where I can find a scientific account of the enclosed "Consumption Cure Found by Italian"?

Louis Shalet, M.D., West New York, N. J.

Answer.—The matter enclosed with Dr. Shalet's letter was a clipping from the New York *Times* of June 30, 1918, purporting to give an account of a new alleged cure for pulmonary tuberculosis said to have been "discovered" by Prof. Domenico Lo Monaco of Rome. The article, in its essentials, was similar to numerous other articles that have appeared in the daily press during the past few weeks. According to the newspaper reports the treatment consists of the subcutaneous injection of sugar—the particular form of sugar not being specified. Although The Journal regularly receives a large number of Italian medical journals, as well as medical journals from other European countries, no reference has been found in these scientific publications to this latest "discovery."

THE CHANCES FOR PHYSICIANS OF MIDDLE AGE BEING SENT ABROAD

To the Editor:—I have been informed by the examiner for the Medical Reserve Corps in Denver that at my age, 43, there is no chance for me to get into foreign service if I offer my services to the government. Kindly inform me whether this is true, and send me all the data possible in the matter, as I wish to offer my services, but want some chance for foreign service.

D. O. N., Colorado.

Answer.—It is not strictly accurate to state that a man 43 years of age will not be sent abroad, since a number of physicians beyond this age are already abroad, and others are no doubt being sent quite frequently. In general, it appears to have been the policy to send younger men, and those not so well qualified physically for the work have been utilized in this country. However, no absolute rule of age discrimination exists, so far as we know.

BASS AND HALL METHOD FOR DETECTING EGGS OF NECATOR AMERICANUS

To the Editor:—Please give briefly the Bass method of concentrating the eggs of the *Necator americanus* by specific gravity. Please omit my name.

H. A. G.

Answer.—The method for detecting the eggs, described by Bass and Hall, is to mix the feces thoroughly with ten times the volume of water, filter through gauze, centrifugalize the filtrate, wash the sediment, and centrifugalize. This is repeated twice. To the sediment is added calcium chlorid solution having a specific gravity of 1.250; the eggs will float to the surface. The surface fluid is poured off and diluted with water until the specific gravity is 1.050. After centrifugalization, the sediment, which will contain practically all the eggs in the stool, is examined.

WORTHLESSNESS OF NONVIRULENT TUBERCULOSIS VACCINE IN TREATMENT OF TUBERCULOSIS

To the Editor:—What are the views of the best physicians in regard to the treatment of tuberculosis with nonvirulent tuberculosis vaccine?

Robert L. Kennedy, M.D., Bascom, Fla.

Answer.—There is no question that all who are competent to judge agree in holding this vaccine as absolutely worthless and, indirectly at least, harmful.

Medical Education and State Boards of Registration

REPORT OF THE FIFTH EXAMINATION NATIONAL BOARD OF MEDICAL EXAMINERS

Fort Riley, Kan., and Fort Oglethorpe, Ga., April 8-25, 1918

The fifth examination of the National Board of Medical Examiners was held in the Medical Officers' Training Camps at Fort Oglethorpe, Ga., and Fort Riley, Kan., April 8-25. The written examinations were held simultaneously in the two places. The laboratory and clinical examinations immediately followed the written examination at the former camp, while at Fort Riley this part of the examination was held from the 19th to the 25th of April. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; chemistry, 75; pathology, 75; bacteriology, 50; materia medica, pharmacology and therapeutics, 75; medicine 200; surgery, 200; obstetrics and gynecology, 75; hygiene and sanitation, 50, and medical jurisprudence, 25. A percentage of 75 was required to pass. Falling below 65 per cent. in two subjects, or below 50 in one subject, constituted failure.

There were fifty-three applicants who applied for examination. Twenty-three were found to have the essential preliminary and medical qualifications, and of these eighteen passed and five failed. The following colleges were represented:

PASSED

Names	Colleges	Year of Graduation
Clarence Van Epps	Univ. of Iowa, and Univ. of Penna	1897 & 1898
Burton Argyle Baird	Univ. of Iowa	1915
John Poag Tucker	Western Reserve Medical School	1916
Spencer Draper Whiting	Boston Univ. School of Medicine	1905
Herman Alfred Heise	Rush Medical College	1917
Wm. Nance Anderson	Univ. of Nebraska College of Medicine	1910
Chas. W. Rauschenbach	University of Maryland	1912
William Cromwell Ely	University of Pennsylvania	1916
Whitman King Coffin	Harvard Medical School	1912
Reuben M. Hargrove	Univ. of Texas Medical School	1912
Paul Brandt Roen	Univ. of California Medical School	1914
Chas. John Harbeck	Columbia Univ. Coll. of Phys. and Surgs.	1905
John Shaffer Simms	Rush Medical College	1911
Clarence Henry Hyman	Harvard Medical School	1916
Albert Warner Dewey	Medical School Univ. of Colorado	1917
Pio Blanco	Johns Hopkins Medical School	1916
Walter H. Halloran	University of Minnesota Med. School	1915
Harry Leroy Smith	State University of Iowa Medical School	1916

FAILED

Colleges	Year
Northwestern University	1907
Jefferson Medical College	1907
Indiana University Medical School	1913
University of Minnesota Medical School	1913
Rush Medical College	1916

AVERAGES OBTAINED

Card Number	Anatomy; Value, 100	Chemistry; Value, 75	Mat. Med., Phar. and Ther.; Value, 75	Obstetrics; Value, 75	Hygiene; Value, 50	Medicine; Value, 200	Surgery; Value, 200	Pathology; Value, 75	Bacteriology; Value, 50	Physiology; Value, 75	Medical Jurisprudence; Value, 25	Final Average
2	80	85	79	76	81	78	85	77	60	93	56	80.0
3	91	90	87	76	60	90	86	74	82	81	70	83.6
4	89	90	81	80	82	80	86	77	94	94	89	84.9
5	90	75	86	81	82	85	85	81	78	70	66	82.1
6	84	75	82	77	85	89	83	75	58	86	70	81.3
8	89	90	92	76	57	87	92	83	76	94	72	85.6
9	81	80	91	75	74	85	90	87	68	84	72	83.1
14	68	42	84	76	67	84	71	72	54	67	76	71.3
3	77	64	87	75	50	81	83	83	78	77	84	78.2
5	90	85	88	71	85	90	91	96	74	85	96	87.5
12	75	90	85	76	79	90	92	80	68	87	80	84.4
13	52	36	70	60	68	78	72	81	54	77	72	67.5
14	68	42	84	76	67	84	71	72	54	67	76	71.3
15	55	50	78	73	62	80	78	69	66	74	72	71.8
20	42	60	77	75	69	80	74	80	76	77	80	72.0
23	78	65	86	77	66	79	72	83	72	82	80	76.4
35	67	60	78	76	35	89	76	42	56	75	80	71.1
41	89	80	86	77	84	87	85	89	74	80	80	84.0
43	83	70	93	80	78	88	78	79	82	81	88	81.9
49	70	76	84	85	70	89	81	81	74	83	76	80.7
50	67	85	86	51	68	86	85	85	68	79	76	78.4
53	86	80	93	80	77	92	89	90	90	92	88	88.1
55	65	75	80	91	78	73	81	58	72	75	84	85.5
Gen. aver. by subjects	75.8	73.2	84.1	75.6	70.6	84.9	81.5	78.6	73.5	81.4	77.3	

General average of candidates is based on subject values as rated by the board.

EXAMINATIONS AND TIME ALLOWED

Subject	Kind of Examination	
	Written	Other, and Remarks
Anatomy	3 hours	Oral with prepared Spec. 20 min. for each candidate
Chemistry	3 hours	Two hours laboratory in physiologic chemistry
Physiology	3 hours	Laboratory 2 hours
Pathology	3 hours	Laboratory exam., 20 min. each cand.
Bacteriology	2 hours	Laboratory 2 hours
Materia medica, pharmacology and therapeutics	3 hours	Laboratory 2 hours
Medicine	3 hours	Clinical lab., 1 hour each cand.; clinical med., 3 hours
Surgery	3 hours	Lab. op. surg. and applied anatomy, 3 hours; clin. exam., 3 hours
Eye, ear, nose and throat	....	Clinical exam., 30 min. each candidate
Dermatology	....	Clinical exam., 30 min. each candidate
Obstetrics and gynecology	3 hours	
Hygiene	2 hours	
Medical jurisprudence	2 hours	

New York January Examination

Mr. George M. Wiley, director, Examinations and Inspections Division, New York Department of Education, reports the written examination held at Albany, Buffalo, New York and Syracuse, in January, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 103 candidates examined, 60 passed and 43 failed. The following colleges were represented:

PASSED

College	Year Grad.	No. Examined
Rush Medical College	(1917)	1
Tulane University	(1913)	1
Johns Hopkins University	(1904) (1916) (1917)	3
Tufts College Medical School	(1915) (1916)	2
University of Michigan Homeo. Med. School	(1917)	1
Albany Medical College	(1915) (1916) (1917)	3
Columbia University	(1916, 2) (1917, 4)	6
Cornell University	(1915) (1916)	2
Fordham University	(1913) (1915) (1916) (1917, 3)	6
Long Island College Hospital	(1917, 3) (1918, 2)	5
N. Y. Homeo. Med. Coll. and Flower Hosp.	(1916, 4) (1917)	5
New York Med. Coll. and Hosp. for Women	(1916)	1
Univ. and Bellevue Hosp. Med. Coll.	(1915) (1916) (1917, 2)	4
University of Buffalo	(1917)	6
University of the City of New York	(1890)	1
University of Oklahoma	(1916)	1
Jefferson Medical College	(1904, 2) (1917)	3
Medico-Chirurgical College of Philadelphia	(1908) (1916)	2
University of Pennsylvania	(1906) (1916)	2
University of Vermont	(1917)	1
Medical College of Virginia	(1911)	1
Queen's University	(1917)	1
McGill University	(1914)	1
University of Bonn	(1890)	1

FAILED

College	Year Grad.	No. Examined
Atlanta Medical College	(1914) (1917)	2
Chicago Homeo. Medical College	(1896)	1
Johns Hopkins University	(1917)	1
Boston University	(1912)	1
Harvard University	(1914) (1915)	2
Tufts College Medical School	(1902) (1917) (1913)	3
University of Michigan Homeo. Med. School	(1914)	1
Albany Medical College	(1917)	2
Columbia University	(1915) (1916)	2
Fordham University	(1913) (1916, 4) (1917)	6
N. Y. Homeo. Med. Coll. and Flower Hosp	(1913) (1915) (1916, 3) (1917, 3)	8
New York Med. Coll. and Hosp. for Women	(1917)	1
University and Bellevue Hosp. Med. Coll.	(1917)	1
University of Buffalo	(1917)	3
Eclectic Medical College	(1916)	1
Medical College of Virginia	(1915)	2
Queen's University	(1914) (1916)	2
McGill University	(1900) (1915)	2
Royal University of Naples	(1908)	1
University of Bologna	(1912)	1

Mr. George M. Wiley also reports that 4 candidates were licensed through reciprocity and 1 candidate was granted a reregistration license, from Feb. 27 to April 15, 1918. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	Delaware
Jefferson Medical College	(1912)	New Jersey
Vanderbilt University	(1916)	Virginia
University of Virginia	(1916)	Virginia

Book Notices

Der histologische Bau der Vogelschnecke und ihre Schädigung durch akustische Reize und durch Detonation. Von Dr. Nobuo Satoh. Arbeit aus dem Laboratorium der physiologischen Anstalt (Prof. Metzner) und der oto-laryngologischen Klinik (Prof. Siebenmann) der Universität Basel. Boards. Pp. 48, with 61 illustrations. Basel: Benno Schwabe & Co., 1917.

A glance at the contents of this book shows its great importance to different branches of medical science. The first part deals with the normal histologic condition of the labyrinth of birds, fixated intra vitam. In an introduction the technic of the fixation of the labyrinth of birds in the living is given, its decalcification, embedding, cutting and staining. This is followed by a description of the microscopic structure of the labyrinth of birds. The second part, on the experimental investigation of the injuries of the bird's organ of hearing by means of acoustic overirritation, is at present of special interest when the questions of shell shock are discussed from every angle. The experiments are carefully described, the microscopic findings given and shown in drawings, and the conclusions drawn free from all speculation. Twelve plates with fifty-five colored illustrations of unusually careful artistic execution help clarify a difficult subject. This is a completely rounded out continuation of similar investigations on mammals from the same laboratories of Siebenmann by Nager, Yoshii and Nakamura. It solves a number of questions which were left open or even seemed insoluble. The short, clear diction and the drawings repay fully for the time devoted to a careful study. Questions of priority are not discussed, and mistakes of others are not criticized but avoided. For example, in spite of the earliest possible fixation, changes of the sensory epithelium were observed less than one hour after death. It is remarkable that Switzerland at the present juncture finds time and money for scientific work which requires the cooperation of professors, technician, artist and publisher.

Principles of Surgical Nursing. A Guide to Modern Surgical Technic. By Frederick C. Warnshius, M.D., F.A.C.S., Chief Surgeon, Pere Marquette Railway. Cloth. Price, $2.50 net. Pp. 277, with 255 illustrations. Philadelphia: W. B. Saunders Company, 1918.

The author has attempted to impart briefly the essential, basic principles of surgical nursing, relying largely on illustrations to aid the concise statements in the text. The work is divided into nineteen chapters, beginning with the preparation of a room and its equipment in a private house, taking up the preparation of the patient, the duties of the nurse before, during and after operation, anesthesia, the preparation of materials, the surgeon's kit, catheterization, the operation for appendicitis, and various hospital methods. The book throughout is rational and follows generally accepted procedure. An excellent table appears on page 135, giving common postoperative complications and their usual sequence. This should be of great service to the nurse in putting her on guard against these conditions. There are in all 255 illustrations, which are distributed over 267 pages, a veritable motion picture method of instruction, and one which is intensely practical. The chapter on hospital methods is composed almost entirely of illustrations, and should be most convenient in teaching the nurse these necessary procedures.

Memoranda on Army General Hospital Administration. By Various Authors. Edited by P. Mitchell, M.D., Lieutenant-Colonel, R. A. M. C. (T. F.), Officer Commanding No. 43 General Hospital. Cloth. Price, 5 shillings, net. Pp. 109, with illustrations. London: Baillière, Tyndall and Cox, 1917.

"The primary object of the Army hospitals," says the author, "is to get the disabled, physically and mentally, fit to fight again." Obviously, therefore, the administration of Army general hospitals is a most important factor in winning the war. It has apparently been the policy of our own Medical Department to place regular medical officers in the medical administrative positions, and to leave the scientific and clinical medical work to the large body of physicians drawn from civilian life. Unfortunately, however, there were less than 500 regular medical officers available at the beginning of the war, a number far from sufficient for the administrative work. It was necessary, therefore, to train civilian physicians in Army administrative methods, and this work is now being done both in special training camps and by placing these physicians in the work so that they may learn from their errors the correct methods. Mitchell's book is not based on American Army methods, but is a description of the English system of organization. The problems of an English general hospital are much the same as those of an American organization. The book, therefore, will be of value to American officers as a reference work; it is not, however, to be studied, since the forms, the apparatus and the equipment referred to are not directly applicable to the problems of the American officer.

American Encyclopedia and Dictionary of Ophthalmology. Edited by Casey A. Wood, M.D., C.M., D.C.L., Professor of Ophthalmology, College of Medicine, University of Illinois. Volume XII—Ophthalmology, Legal Relations of, to Phonopticon, Crystal. Cloth. *Price, $8. Chicago: Cleveland Press, 1918.*

Among the important articles in this volume of the encyclopedia are those on the literature of ophthalmology, in which a consecutive account of the development of ophthalmologic works, journals, etc., from early history to the present, is given; the ophthalmoscope and ophthalmoscopy, an extensive article, quite thoroughly covering the field; the orbit, its diseases and injuries, and operations on the orbit; ocular parasites, an extensive article, reminding the ophthalmologist of the comparative frequency and great variety of parasites invading the eye; Parinaud's conjunctivitis; a historical article on Paul of Aegina, with an enumeration of the eye subjects that he described, and comments on them; the perimeter and perimetry, an extended article with an extensive bibliography on an important subject; and a brief but good article on the optic nerve, its diseases, degenerations, injuries, etc., all of which are up to the well maintained standard of the previous volumes.

A Manual of Clinical Diagnosis by Means of Laboratory Methods for Students, Hospital Physicians and Practitioners. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology and Physiological Chemistry in the University of Maryland Medical School. Ninth edition. Cloth. Price, $6. Pp. 851, with 235 illustrations. Philadelphia: Lea & Febiger, 1918.

The ninth edition of this time-tried text has brought it up to date. Numerous colored illustrations have been added which should be of great value to the student in correlating his textbook with his laboratory exercises.

Medicolegal

Osteopath Not a Physician and Surgeon

(Ex parte Rust (Calif.), 169 Pac. R. 1050)

The District Court of Appeal of California, First District, says that the return of the sheriff to the writ of habeas corpus applied for in this case showed that the petitioner was held on a commitment of the police court of the city and county of San Francisco for violating the law regulating the practice of optometry. In support of his demand that he be discharged from custody he contended that by virtue of his being the holder of a certificate entitling him to practice osteopathy, he was by the terms of the act itself regulating the practice of optometry excepted from its prohibitory provisions. The exception referred to was contained in Section 10 of said act, and is: "The provisions of this act shall not be construed to prevent duly licensed physicians and surgeons from treating or fitting glasses to the human eye." The question to be determined, then, was whether an osteopath, licensed under the statute regulating that profession, was within the purview of the optometry law a licensed physician and surgeon. The act of 1913 regulating the practice of medicine and surgery provides for the examination of persons desiring to follow these professions, and for the issuance of two forms of certificate, one designated a "physician and surgeon certificate," and the other a "drugless practitioner certificate." The distinction between these certificates is quite marked, and they are issued as the result of a different examination; and it is very apparent to the court that the term "duly licensed physicians and surgeons," as used in the section of the act above quoted, has direct reference to the holders of the former class of certificates to the exclusion of the holders of the latter. The cases cited by the petitioner from other jurisdictions holding that an osteopath may be said to engage in the practice of medicine and surgery had no application to the facts in this case, in which the question was much narrower and was one of statutory construction. Under the statute the court is clearly of the opinion that the petitioner was not a "duly licensed physician and surgeon," wherefore it was ordered that the writ be discharged and the petitioner remanded to the custody of the sheriff.

Damages for Alleged Negligence in Treatment of Dislocation

(McCann v. Twitchell (Me.), 102 Atl. R. 740)

The Supreme Judicial Court of Maine overrules the defendant's exception and motion for a new trial after the jury returned a verdict in favor of the plaintiff for $4,900 damages for alleged malpractice in the setting and treatment of his left arm by the defendant. The ulna of the arm had been broken and the radius dislocated by the plaintiff, aged 30 years, having been thrown from an automobile, and he claimed that the defendant, who took charge of his case, negligently failed to discover the dislocation and did not properly treat it after he did know of it. The defendant testified that he suspected there might be a dislocation of the head of the radius, but that the arm was so much swollen that he could not then determine that, and that he did not feel it was safe to etherize the plaintiff owing to his physical condition then as indicated by his breathing; and that he, and not the plaintiff, suggested that the roentgen ray be used. The court says that it would serve no useful purpose to attempt any extended analysis of the evidence bearing on the issues of fact in the case. No legal propositions by which the defendant was bound in the discharge of his duty to the plaintiff were in dispute. It was not urged that he did not possess the ordinary skill of members of his profession in like situation. He was bound to exercise ordinary skill and reasonable care and diligence in his treatment of the case, and to use his best judgment in the application of his skill to the case. Whether or not he did that was an issue of fact for the jury. They decided that issue in the plaintiff's favor. Nor does a careful study of the evidence satisfy the court that their verdict was wrong, either as to the defendant's liability, or as to the amount of damages awarded the plaintiff. Evidence was introduced tending to show that the plaintiff's disbursements and liabilities necessarily incurred on account of the injuries to his arm amounted to nearly $1,400; his suffering was severe and long continued, and his arm was permanently crippled, though somewhat serviceable. Assuming, though not so deciding, that it was error for the plaintiff to testify that the defendant said, in conversation with him concerning his liability for negligence in treating the arm, that the plaintiff could do him no harm as he was protected by a liability insurance, the court thinks that such error should not be deemed a sufficient ground for a new trial in view of the fact that the presiding justice, on his own motion, and soon after the admission of the statement, ordered it struck from the record and instructed the jury to pay no attention to it in their consideration of the case, explaining to them fully why they should not do so.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Denver, Aug. 6-8.
Idaho State Medical Association, Seattle, July 17-19.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Oregon State Medical Association, Seattle, July 17-19.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Washington State Medical Association, Seattle, July 17-19.
Wyoming State Medical Society, Casper, Aug. 7.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

June, 1918, **8**, No. 6

1 Medical Officers Training Camp. E. S. Tenney, Fort Riley, Kan.—p. 401.
2 Rural Health Administration Under Cooperative or Local Health District Plan. G. F. Ruediger.—p. 406.
3 Rural Health Administration Under State Health District Plan. F. W. Sears, Albany.—p. 412.
4 Health Publicty an Aid to Cooperation Between Health Department and Citizen. J. W. Trask, Washington, D. C.—p. 417.
5 Mosquito Control in New Jersey. R. H. Hunt.—p. 421.
6 Sanitation of Swimming Pools. C. E. Smith, Jr., and H. M. Schoberg, St. Paul, Minn.—p. 424.
7 Standards for Prevention of Compressed Air Illness. S. Erdman, New York.—p. 431.
8 Recent Progress in Ventilation. F. Bass.—p. 434.
9 Prevention of Hay Fever as National Problem. W. Scheppegrell, New Orleans.—p. 437.
10 Medical Department Records, Morbidity Reports and Vital Statistics of Navy. J. R. Phelps.—p. 442.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, 1917, **26**, No. 4

11 Bone Metaplasia in Tonsil. H. Albert and M. G. Douglas, Iowa City, Iowa.—p. 909.
12 Double Otitis Media: Submiliary Pulmonary Tuberculosis. E. Amberg, Detroit.—p. 933.
13 Tubercular Mastoiditis—Radical Operation Under Cocain Anesthesia. H. Hays, New York.—p. 938.
14 Ozena and Asphyxiating Gas; New Etiologic Standpoint. M. Natier, Paris, France.—p. 942.
15 Carcinoma of External Ear; Report of Case. F. Warner, Columbus, Ohio.—p. 950.
16 Abscess of Lung Following Tonsillectomy. C. W. Richardson, Washington, D. C.—p. 961.
17 Obscure Syphilitic Manifestitations in Nasal Cavities. D. Roy, Atlanta, Ga.—p. 967.
18 Case of Meningitis with Unusual Features. C. E. Perkins, New York.—p. 978.
19 Intranasal Operation for Chronic Dacryocystitis. C. F. Bookwalter.—p. 982.
20 Mastoid Cases from Roentgenologic Standpoint. G. S. Dixon, New York.—p. 986.
21 Dentigerous Cysts; Report of Case. I. Frank, Chicago.—p. 991.
22 Subacute Mastoiditis. H. B. Blackwell, New York.—p. 999.
23 Case of Meningitis of Otitic Origin. A. Kahn, New York.—p 1004.
24 Treatment of Progressive Deafness from Chronic Secretory Otitis Media. F. P. Emerson, Boston.—p. 1007.

Boston Medical and Surgical Journal

June 20, 1918, **178**, No. 25

25 Socialization of Practice of Medicine. M. Standish, Boston.—p. 837.
26 Adequate Community Organization for Health Educational Work. M. A. Abel, Framingham.—p. 850.
27 Relative Values in Antituberculosis Work. C. M. Hilliard, Boston.—p. 853.
28 Annual Report of Massachusetts Antituberculosis League, 1918. E. M. Spofford, Boston.—p. 858.
29 Follow-Up Work in Tuberculosis in Small Town and Villages in Massachusetts. B. M. Billings, Boston.—p. 861.
30 War and Tuberculosis. C. J. Hatfield, Philadelphia.—p. 863.
31 Conservation of Man Power in Industry. A. M. Staebler, Boston.—p. 868.
32 Idiopathic Epilepsy a Sympathicopathy. E. A. Tracy.—p. 871. To be continued.

Bulletin of Johns Hopkins Hospital, Baltimore

June, 1918, **29**, No. 328

33 *Effect of Forced Feeding on Nitrogen Equilibrium and Blood in Pernicious Anemia. H. O. Mosenthal, Baltimore.—p. 129.
34 Clinical Significance of Various Cells and Parasites in Blood Stream and Production of Abortive Leukemic Changes and of Splenomegaly in Macacus Rhesus. A. W. Sellards and W. A. Baetjer, Baltimore.—p. 135.

33. Effect of Forced Feeding on Nitrogen Equilibrium and Blood in Pernicious Anemia.—Three patients who had pernicious anemia were put on high diets. The food was made as appetizing as possible, the personal wishes of the patients were consulted and no attempt was made to maintain a definite proportion of proteins, fats or carbohydrates. These patients were all kept under strict supervision in a small metabolism ward. They remained in bed, thus establishing their metabolic requirements at as low a level as possible. The only medication which they received was dilute hydrochloric acid. In one case transfusions were given. There was no difficulty encountered at any time during the observation in bringing about an extensive assimilation of nitrogen. One of the patients retained 3.4 gm. of nitrogen a day for twenty-eight days, another, 3.4 gm. a day for thirty-two, and the third 6.8 gm. a day for thirty-six days. In two of the patients the improvement was not very striking; the hemoglobin in one case rose from 36 to 48 per cent. in twenty-eight days; during that time the patient received two transfusions; in the other case the hemoglobin and red blood cells were only very slightly increased at the end of thirty-six days; in the third case, on the other hand, there was a very marked improvement, the hemoglobin rising from 25 to 60 per cent. in thirty-two days and the red blood cells increasing correspondingly.

Mosenthal is convinced that the nitrogen in these cases is retained. The question as to what use the body makes of it is another matter. A control case of secondary anemia was treated in the same manner as the patients with pernicious anemia, with the exception that no hydrochloric acid was given. This patient received a higher caloric diet than the other patients. His desire for food was enormous and even with an intake of 68.9 calories per kilogram, he claimed that he could easily manage a little more. The nitrogen assimilation in this patient was decidedly higher than in those with pernicious anemia. This may have been accidental, but it suggests that the element of protein destruction does play a considerable rôle in pernicious anemia.

California State Journal of Medicine, San Francisco

June, 1918, **16**, No. 6

35 Training of Nurses and Social Workers in Present Emergency. P. K. Brown, San Francisco.—p. 281.
36 *Interrelationship of Asthma and Tuberculosis. P. H. Pierson, San Francisco.—p. 284.
37 *Value of Renal Functional Studies in Prognosis and Treatment of Nephritis. S. H. Hurwitz, San Francisco.—p. 287.
38 Schistosomiasis in California. A. C. Reed, San Francisco.—p. 293.
39 Venereal Disease Control in California. H. G. Irvine and E. M. Watters, San Francisco.—p. 296.
40 Laboratory Technic Carried Out in Studies of Lobar Pneumonia in Base Hospital. K. J. Staniford.—p. 300.
41 Cerebral Edema in Intracranial Trauma. A. S. Lobingier, Los Angeles.—p. 303.
42 Sarcoma of Choroid; Report of Two Cases. B. F. Church, Redlands.—p. 305.
43 *Passage of Drugs from Blood Serum to Spinal Fluid. H. G. Mehrtens, San Francisco.—p. 306.

36. **Interrelationship of Asthma and Tuberculosis.**—Pierson emphasizes the fact that asthma is not always a diffuse process but often limited to a small area in one lung. Although the signs may be localized the symptoms may be localized or general. Whether primarily or secondarily infected the first evidence of pulmonary tuberculosis is an enlargement of the bronchial glands. Their enlargement is a part of the normal mechanism for the battle against the disease. It is through their functioning that antibodies are manufactured. When the person is enjoying good health the glands are not interpreted as a tubercular focus; it is only when the person is below normal that they are considered as of potential or possibly actual danger. In this latter type of a person the glands are swollen and more actively diseased. Their presence irritates the adjoining bronchi, setting up a low grade inflammation which may become the seat of secondary infection. These factors may start the vicious circle for an asthmatic condition. This condition may occur during childhood or later life and may irritate one bronchus and hence one lobe, or one lung or both lungs. This is a very important factor in properly interpreting localized asthmatic breathing. From the glandular condition slowly or rapidly develops a peribronchial fibrous thickening extending outward toward the periphery. This may involve one lobe much more than another. All this time the person is manufacturing antibodies, and if these are sufficient the disease remains confined and not actually dangerous. If the scale turns against the person in this struggle, there may occur a breaking down of the glandular or lymphatic elements at the hilus or nearer the periphery and a focus start in the lung tissue. Again depending on the location and also on the extent of the process, one or more lobes may be involved by an irritating process in a bronchiole and a factor established for a possible localized asthma. The tuberculous disease may not break down so as to invade the smaller alveoli but it may cause a chronic inflammatory process in the bronchioles on which is developed a secondary infection. The possible tuberculous etiology for this secondary infection must not be overlooked in such instances. From this survey and working on the "nonpassive expiratory theory," Pierson explains clinically and pathologically that localized foci of tuberculosis may, and from experience do, actually set up a localized or general asthma.

37. **Value of Renal Functional Studies in Treatment of Nephritis.**—Hurwitz urges that studies of the permeability of the kidneys for fluids, salt, and nitrogen are of great assistance in the laboratory control of nephritis. They aid in visualizing the actual daily response of the kidney to the therapeutic measures and they serve as a guide in the management not only of the disease, but of the individual patient.

43. **Passage of Drugs from Blood Serum to Spinal Fluid.**—The introduction of the patient's own serum into the subarachnoid space produces an irritation manifested by a pleocytosis frequently as high as 1,800 cells per cm. Even drainage of 30 to 50 c.c. of spinal fluid may be followed by a mild reaction of 10 to 80 cells. Mehrtens thought it possible that this irritation of the choroid would enable drugs and antibodies to pass into the spinal fluid for a period of thirty-six hours. In order to secure exact information on this point, he attempted to bring sodium iodid from blood to spinal fluid. The technic consisted in injecting 50 grains of sodium iodid in a .10 per cent. solution intravenously every half hour for four injections. One hour after the last injection, 12 c.c. of spinal fluid was removed, a cytologic examination was made and the fluid was examined for iodin. In ten control cases no iodid was found. In the next group of cases (eight) the same routine was followed except that 10 c.c. of horse serum was injected into the subarachnoid space six hours before the intravenous injections of iodid. The resulting spinal fluids in six cases showed intense irritation in some cases up to 16,000 cells per c.mm.—in two cases practically no reaction was obtained. Those cases showing the intense reaction gave definite tests for iodin in the spinal fluid. The two cases showing little or no reaction gave negative tests for iodin. These results would seem to point to the irritation of the meninges as the essential feature in producing the permeability for iodid.

Canadian Medical Association Journal, Toronto

June, 1918, **8**, No. 6

44 Medicine and Democracy. J. P. Morton, Hamilton, Ont.—p. 481.
45 *Determination of Basal Metabolism by Indirect Calorimetry; Case of Polycythemia with Splenomegaly. M. E. Abbott, Montreal.—p. 491.
46 Protein Milk in Treatment of Digestive Disturbances. A. Brown, H. Spohn and I. F. MacLachlan, Toronto.—p. 510.
47 Malaria in the Army. E. J. Williams.—p. 523.
48 Abscess of Lung. W. A. Wilkins, Montreal.—p. 530.
49 Two Cases of Dermoid Tumors Complicating Pregnancy. J. N. Hutchison, Winnipeg.—p. 535.
50 Canadian National Committee for Mental Hygiene. E. M. Russel.—p. 538.

45. **Determination of Basal Metabolism by Indirect Calorimetry.**—In the cases cited by the authors the basal metabolism was determined on two occasions, at an interval of five months. The average of the results showed a heat product of 40.9 calories per square meter of his body surface per hour, that is a rise above the normal standard, for persons of his sex and age, of 16 per cent. The second determination was made two days before discharge from the hospital, 45.3 calories per square meter were produced giving a raised basal metabolism of 28.7 per cent. This moderate rise of metabolism compares with cases of pernicious anemia studied by others in which a similiar rise was noted, in

view of the red cell regeneration that frequently exists in both diseases. The author claims that this is the first observation of the kind ever made.

Florida Medical Association Journal, Jacksonville

April, 1918, **4**, No. 10

51 Practical Eugenics. J. J. Kindred, New York.—p. 287.
52 Open-Air Life. J. M. Masters, Port Orange.—p. 291.
53 Diagnosis and Treatment of Myocarditis. R. R. Niblack, New Smyrna.—p. 292.
54 Relation of Pancreas to Diabetes. H. S. Munson, DeLand.—p. 293.
55 Diabetic Gangrene. D. T. Smith, Daytona.—p. 295.
56 Treatment of Tuberculosis of Skin. M. P. Guy, Daytona Beach.—p. 296.
57 Feeding of Tubercular Patient. C. C. Bohannon, Daytona.—p. 296.
58 Diet in Chronic Bright's Disease. V. Z. Baerecke, Deland.—p. 297.

Indiana State Medical Association Journal, Fort Wayne

June, 1918, **11**, No. 6

59 The New Way. F. H. Martin, Chicago.—p. 223.
60 Repair of Birth Injuries. F. R. Clapp, South Bend.—p. 229.
61 Restoration of Part or All of Lower Jaw. H. R. Allen, Indianapolis.—p. 230.
62 Advantages and Disadvantages of Joining Medical Reserve Corps. F. W. Foxworthy, Indianapolis.—p. 231.
63 Physician's Whole Duty. A. G. W. Childs, Madison.—p. 235.
64 Phthisiogenesis and Its Relation to Classification of Pulmonary Tuberculosis. W. A. Gekler, Terre Haute.—p. 238.

Journal of Medical Research, Boston

May, 1918, **38**, No. 2

65 *Anatomic Study of Senescence in Dogs; Relation of Cellular Changes of Age to Tumors. E. W. Goodpasture, Boston.—p. 127.
66 Immunity and Tissue Transplantation. Reactions Occurring About Tissue Transplanted Into Homologous Animals. M. S. Fleisher, St. Louis.—p. 191.
67 *Mitochondria of Tumors. E. W. Goodpasture, Boston.—p. 213.
68 Pathology of Spavin. S. A. Goldberg, New York.—p. 225.
69 Monostome of Genus Collyriclum Occurring in European Sparrow; Development of Ovum. E. E. Tyzzer.—p. 267.

65. **Relation of Cell Changes to Tumor.**—The material for this study consisted of the postmortem findings in fifty old dogs. Goodpasture was able to demonstrate general and widespread degenerative cellular changes and an associated simplification of structure, together with an acquisition of growth power accompanying the progress of age. Following in the wake of these regressive alterations are cellular redifferentiation, metaplasia, multiple benign and malignant tumors. These phenomena are consecutive and interrelated. Goodpasture has been led by his observations and by certain biologic facts to the following interpretation: Progressive cellular differentiation eventually leads to senescence by the constant accumulation in the protoplasm of more or less stable structural substances. A disturbance of assimilation or of metabolism of cells in time results, maybe, with the accumulation of injurious metabolic substances within either cytoplasm or nucleus. Many cells die, while others lose their specialization, and in so doing they recover to a greater or lesser degree their vitality and youth. These dedifferentiated cells possess potentialities for growth and differentiation in varying degrees. By the process of dedifferentiation cells may lose not only their specialization, but also the power of again becoming perfectly adapted to the needs of the organism. The simplest form of dedifferentiation may result in the regeneration of cells, which become easily adapted to specialized function. Further dedifferentiation gives rise to cells which when regenerated are capable of only partial resumption of function, while a greater degree of this change may entirely destroy the capacity of the cell to resume special function and structure, but leaves formative power dominant in its life. The continued growth of these cells results in tumors which are malignant. The malignant as well as the benign tumors of old dogs are usually multiple. Senescence in dogs is accompanied by multiple degenerative changes in many organs and tissues, and associated with these changes are multiple benign and malignant tumors, which seem to result directly from these degenerative changes. With age there is progressive differentiation which eventually injures the cells of the body. Many of these cells die, others become dedifferentiated in varying degrees. These dedifferentiated cells possess the power to grow, but their capacity to function may be diminished or lost. From these dedifferentiated cells metaplasia and benign and malignant tumors arise.

67. **Mitochondria of Tumors.**—The number and, to a certain extent, the character of mitochondria of tumors may vary somewhat from the normal tissue in which they arise, but the difference is not sufficient to warrant a distinction between malignant and benign cells, nor is the difference in staining constant or uniform. Conclusions concerning the specific functional activity of cells, especially those of tumors, based on such evidence as an increased amount or difference in character of mitochondrial substance do not seem to Goodpasture to be justifiable. Mitochondria may be present in great numbers in cells which obviously are not concerned with specific function, that is, those undergoing mitosis, and in undifferentiated malignant tumors. Mitochondria are composed of material which is utilized by the cell in its general metabolic processes, and in this way may be indirectly involved in the formation of secretion and other specific structures.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, 1918, **11**, No. 4

70 *Effect of Intravenous Injections of Some Sodium Salts; Supposed Toxicity of Sodium Phosphate. I. Greenwald, New York.—p. 281.
71 *Pharmacology and Toxicology of Copper Salts and of Amino Acids. H. L. Huber.—p. 303.
72 Treatment of Amebic Dysentery with Chaparro Amargosa (Castela Nicholsoni of Family Simarubaceae). A. W. Sellards and M. A. McIver, Boston.—p. 331.

70. **Intravenous Injections of Some Sodium Salts.**—Greenwald states that the symptoms observed after intravenous administration of neutral solutions of the sodium salts employed (chlorid, sulphate and phosphate) depend on: (1) Changes in the volume of the circulating fluid. (2) Changes in the osmotic pressure. (3) Change in reaction, due to selective retention of the cation. (4) Disturbance of the relation between sodium and potassium, calcium and possibly other ions in the blood and other tissues. (5) The nature of the anion, but probably only through its effect in determining the permeability of the cells to the sodium. There is no evidence of a direct, toxic action of the phosphate ion.

71. **Copper Salts of Amino Acids.**—Huber's experimental work seems to show that the three copper amino acids examined (leucinate, glycinate and glutaminate) produce exactly the same physiologic effects as a simple inorganic salt, copper sulphate.

Medical Record, New York

June 22, 1918, **93**, No. 25

73 Facts and Fancies About Tonsils. H. L. Swain, New Haven, Conn.—p. 1069.
74 Select Medication in Children. H. B. Sheffield, New York.—p. 1078.
75 Enteroptosis or Exoptosis? A. L. Benedict, Buffalo.—p. 1083.
76 Custodial Care of Addicts. E. C. Chamberlain, New York.—p. 1085.
77 The Structural and Relational Variations in Uterine Peritoneum. H. Crutcher, Tularosa, N. M.—p. 1086.
78 Cooperation Between Life Insurance Companies and Practicing Physician. T. W. Edgar, New York.—p. 1087.

Military Surgeon, Washington, D. C.

June, 1918, **42**, No. 6

79 *Treatment of Tuberculosis. G. E. Bushnell.—p. 625.
80 Combat against Dsease Durng War. C. U. Dercle.—p. 642.
81 *Causes and Prevention of Primary Pneumonias and Pneumonias Complicating Measles in U. S. Army. W. A. Pratt.—p. 653.
82 *Gunshot Fractures of Long Bones of Extremities. H. Frost—p. 659.
83 Report of Physical Examination of Twenty Thousand Volunteers. C. L. Cole, E. W. Loomis and E. A. Campbell.—p. 675.

79. **Treatment of Tuberculosis.**—Speaking of tuberculin, Bushnell says, that he has too often seen very serious harm from tuberculin, as employed by others, to be enthusiastic concerning its use. Tuberculin is most helpful to those who need help least. Advanced cases of tuberculosis are very

seriously injured by it, but the rather numerous class of sanatorium patients who have little or no active tuberculosis, their disease being of a chronic, though often diagnosticated as acute type, are able to tolerate it, sometimes apparently to their advantage. Those physicians whose practice is mostly confined to cases of well marked, manifest pulmonary tuberculosis are rarely enthusiastic advocates of its use. An accurate diagnosis is indispensable. Tuberculin in the hands of the ignorant is a terribly deadly weapon. Bushnell believes that cases of genuinely active tuberculosis are more often harmed than benefited by it, and is of the opinion that better results in the long run for the average patient are attained by the psychical treatment. He is therefore opposed to its use in army hospitals.

81. **Causes and Prevention of Primary Pneumonia.**—In dry climates sudden changes in humidity are not encountered as a rule and people living there are acclimated, nevertheless they are affected by any sudden change in humidity. Pratt says that observations go to show that exposure to cold temperatures does not predispose one to pneumonia unless through excessive loss of body heat when resistance is lowered. Cold air is not necessarily pure air, yet in well ventilated, cool rooms the blood is better able to take up available oxygen. In view of this fact should we not surround all blood infections with these conditions, especially measles? The whole blood stream can become toxic in a remarkably short time, even in an hour. Many of these toxic elements are not eliminated as quickly as they are taken up by the blood. Carbon monoxid, although it is rarely present in the conditions under consideration, yet carbon, hydrogen and sulphur combinations may exist in gaseous states which unite with hemoglobin as readily as the monoxid of carbon.

In barracks at bed time, while healthy, active men are undressing after a day of marching or drilling, odors from their bodies abound, and we must not neglect to mention those nauseating emanations from the feet. Under these conditions, with slight disorders in the upper air passages, the often freshly cultured pathogenic germs enter and gain such a profound hold that all therapy seems hopeless. Pratt has observed the complexion of men living under conditions cited above, at reveille; invariably they are pale, almost to a man. After an hour or two of drilling the color comes back and is generally good toward evening. The night indoors follows, with results that should not happen. Whether troops are sleeping in barracks, cantonments, or tents, rules requiring open windows, or tent flaps, will only be disregarded unless we first of all make sure the bedding is adequate. Pratt points out that along with other rational measures the drafting at once of systematic sanitary regulations for troop trains seems imperative. The adoption of some, if not all, of these preventive measures would seem feasible, practical and not costly.

82. **Gunshot Fractures of Long Bones of Extremities.**—Frost relates some of his experiences in a base hospital in England. Among 4,000 cases there have been 550 fractures, of which 287, or 52.18 per cent., have involved the long bones of the extremities. About 13 per cent. of these have been simple fractures. The missiles causing the fractures (195) have been proportioned as follows: bullet, 49.8 per cent.; shell, 34.3 per cent.; shrapnel, 9.7 per cent.; grenade, 2 per cent.; undetermined, 4.1 per cent. Flesh wounds have been of this order: perforating, 59.6 per cent.; nonperforating, including gutter wounds, 40.3 per cent.; of the perforating wounds, 14.2 per cent. have had explosive exits. The majority of perforating and explosive wounds were caused by bullets; of nonperforating wounds, by shell fragments. Of 195 cases, 76.9 per cent. have been infected; and 23.1 per cent. noninfected.

In the infected cases, bullet and shell have been in about equal proportion; in the noninfected cases, the bullet has been the chief agent. The average period required for union of infected fractures has been seventy days while of noninfected fractures it has been fifty days. Likewise, the average time of treatment of this hospital has been: infected, 137 days; noninfected, seventy-four days. Infected fractures attain poorer ultimate function than the noninfected. Complications have occurred as follows: nonunion, 6.1 per cent.; nerve injuries, 7.1 per cent.; secondary hemorrhage, 0.5 per cent.; ankylosis, 18.9 per cent.; muscle and tendon adhesions, 3.0 per cent.

Of 195 fractures, about 5.6 per cent. have required amputation. The majority of these had been amputated in France, about 55.5 per cent. of them required reamputation after admission. This is accounted for by the prevalence of flush amputations. The fracture cases (195) have been disposed of as follows: invalided, 43.6 per cent.; transferred to orthopedic hospitals, 15.7 per cent.; to convalescent homes, 30.9 per cent.; to duty, 9.6 per cent. There has been only one death in 287 long bone fractures; in a case involving the head of the tibia and knee joint, with resulting septicemia.

Missouri State Medical Association Journal, St. Louis

June, 1918, **15**, No. 6

84 Traumatic Rupture of Kidney. M. Goldman, Kansas City.—p. 197.
85 *Mucosa of Rectum and Sigmoid Colon as Focus of Infection. H. W. Soper, St. Louis.—p. 200.
86 General Medical Aspect of Focal Infections Including Those of Gallbladder and Appendix. L. H. Hempelmann, St. Louis.—p. 205.
87 Focal Infections of Genito-Urinary Organs. H. G. Greditzer, St. Louis.—p. 203.
88 Focal Infections of Female Genitalia. F. J. Taussig, St. Louis.—p. 205.
89 Poison of Evolution. G. F. Wright, Oberlin, Ohio.—p. 207.
90 Pseudonymous Science and Philosophy of Deceit. E. W. Saunders, St. Louis.—p. 207.
91 Physiology and Pathology of Mediastinum. G. Richter, St. Louis.—p. 211.

85. **Mucosa of Rectum and Sigmoid Colon as Focus of Infection.**—Soper has found that the lower colon is frequently invaded by pus-forming organisms. The infection is mixed in character and exhibits an extreme degree of chronicity. The resulting systemic disease varies from merely nervous disturbances, headaches, and constipation to pus infection of the appendix and gallbladder, gastric ulcer, arthritis deformans and chronic kidney disease. Soper says that treatment by dry powder insufflation method of Rosenberg is extremely efficacious. Calomel is the powder of choice for local use, as it adheres well to the mucosa and cannot be easily dislodged. It is nonirritant and may be applied to the sensitive mucosa of the anal canal without producing pain. There is no danger from absorption. Not a single case of systemic disturbance followed the daily use of large quantities. Finally, calomel had probably more antiseptic power than any other available powder. In the search for foci of infection, the lower bowel must not be neglected. In fact, no general examination of a patient is complete without proctosigmoidoscopy.

Modern Hospital, St. Louis

June, 1918, **10**, No. 6

92 Nursing Crisis. S. S. Goldwater, New York.—p. 389.
93 Nonrestraint System in Insane Wards of Nagasaki Hospital. N. Ishida, Nagasaki, Japan.—p. 393.
94 Standards of Hospital Education for Interns. J. M. Baldy, Philadelphia.—p. 397.
95 Nurses' Homes—Plea for Efficiency in Their Design. M. J. Sturm, Chicago.—p. 403.
96 Installation of Modern Roentgen Equipment at Moderate Expense. V. M. Moore, Grand Rapids, Mich.—p. 409.
97 Open Cottages at Kankakee State Hospital. E. Cohn, Kankakee, Ill.—p. 411.
98 New Maternity Building for West Philadelphia. L. W. Burrows, Philadelphia.—p. 413.
99 Little Journeys to Places and People Worth Knowing. M. J. Robinson.—p. 417.

Nebraska State Medical Journal, Norfolk

June, 1918, **3**, No. 6

100 Nephritis. A. Sachs, Omaha.—p. 169.
101 Nebraska State Department of Health. W. F. Wild.—p. 173.
102 Rectal Examinations in Obstetrics. P. Findley, Omaha.—p. 175.
103 Treatment of Eclampsia. J. C. Edgar.—p. 177.

Northwest Medicine, Seattle

June, 1918, **17**, No. 6

104 Surgery of Prostatic Urethra and Bladder Neck. G. McGowan, Los Angeles.—p. 159.
105 Fractures from Viewpoint of General Practitioner. R. H. Fisher, Rigby, Idaho.—p. 166.
106 Case of Uterus Bicornis Duplex. S. F. Wiltsie, Seattle.—p. 1[illegible].

107 Operative Indications for Deflection of Nasal Septum. O. M. Rott, Spokane.—p. 171.
108 Hemostasis in Tonsillar Surgery. E. F. Chase, Seattle.—p. 173.
109 Skin Changes in Lymphatic Leukemia. W. Brown, Tacoma.—p. 175.
110 Nocturnal Emissions and Continency. B. S. Peterkin, Seattle.—p. 178.

Surgery, Gynecology and Obstetrics, Chicago

June, 1918, 26, No. 6

111 Military Aspects of Surgery of Spine and Spinal Cord. C. H. Frazier, Philadelphia.—p. 589.
112 Old Injuries of Spinal Cord. A. B. Kanavel, Chicago.—p. 601.
113 *Changes in Trigon Due to Tuberculosis of Kidney, Ureter and Bladder. H. H. Young, Baltimore.—p. 608.
114 *Effect of Dichloramin-T Chlorinated Eucalyptol Solution on Peritoneum. S. P. Reimann and J. A. H. Magoun, Philadelphia.—p. 616.
115 Therapeutic Use of Radium in Gynecology. J. G. Clark, Philadelphia.—p. 619.
116 Radium in Uterine Cancer. H. C. Bailey, New York.—p. 625.
117 Study of Kidney and Ureteral Stones with Cystoscopic Method for Their Removal. V. D. Lespinasse, Chicago.—p. 631.
118 *Gunshot Injuries of Lungs; Report of Thirty Cases. C. Eggers.—p. 638.
119 *Is Purgation of Patients Before Operation Justifiable? W. C. Alvarez, San Francisco.—p. 651.
120 Ligation of Splenic Artery for Banti's Disease; Report of Case. A. W. Blain, Detroit.—p. 660.
121 Retroperitoneal Cysts of Wolffian Origin; Report of Case. J. M. Maury, Memphis, Tenn.—p. 663.
122 *Puerperal Septic Uteropelvic Thrombophlebitis; Report of Case. A. Turenne, Montevideo, Uruguay.—p. 668.
123 Exstrophy of Bladder; Report of Case. C. C. Coleman, Richmond, Va., and R. J. Wilkinson, Huntington, W. Va.—p. 678.
124 Transperitoneal Nephrectomy in Infants for Large Congenital Hydronephrosis. M. S. Kakels, New York.—p. 681.
125 New Fracture Orthopedic Operating Table. F. H. Albee, New York.—p. 683.
126 *Rubber Tube Reconstruction of Common Bile Duct. F. Hagler, St. Louis.—p. 689.

113. Changes in Trigon Due to Tuberculosis.—Cases are cited by Young to demonstrate that tuberculosis of the kidney may lead to great shortening of the ureter, resulting in traction on and marked elevation of the trigon, and invagination of the ureteral ridge into the ureter; that tuberculous ulceration may then produce an undermining of this elevated trigon and finally complete separation of trigon from the bladder beneath, except at the three corners (where the trigon is continuous with the ureteral muscle above and the urethral muscle below); that, after nephrectomy, healing of the vesical tuberculosis may leave this "trigonal bridge" with new mucous membrane beneath it except at the three corners where the "bridge" is attached and gets its blood supply.

114. Effect of Dichloramin-T on Peritoneum.—On the surgical service of the Lankenau Hospital, observations have led to the conclusion that very definite harm can be done by this method of treatment, and that, contrary to published opinions, skin irritation takes place, despite careful adherence to the principles of fresh undecomposed solutions, minimum dressings, avoidance of alcohol, water, and other substances likely to decompose the solution. Blood and exudate form a solid coagulum in the meshes of the gauze and interfere with drainage. The effect of solutions of 7.5 per cent. and 20 per cent. dichloramin-T chlorinated eucalyptol on the healthy peritoneum of dogs was investigated. The same strength solutions were used on infected peritoneum to determine if infection would be inhibited or destroyed. Observations from the surgical service on the effect of the 20 per cent. oil in the treatment of abscess cavities in the peritoneum shows that the solution causes clotting of blood and exudate on gauze, and drains, and leads to interference with drainage and trauma. In the peritoneum of dogs, it causes a violent irritation with a hemorrhagico fibrinous exudation. The same results in the peritoneum of dogs are produced by the 7.5 per cent. in a certain percentage of cases. Both the 7.5 per cent. and the 20 per cent. solutions are distinctly harmful to the peritoneum; the benefits are none.

118. Gunshot Injuries of Lungs.—Eggers' experience leads him to urge that perforating gunshot wounds of the thorax and lungs with a closed pneumothorax or without one, should be treated conservatively. Hemothorax producing alarming symptoms of compression should be aspirated early, removing just enough fluid at first to relieve the symptoms. Hemothorax running a normal course but showing no or little tendency to absorption, should be aspirated to prevent the formation of a thickened pleura, contraction of the lung, etc. An infected hemothorax should either be aspirated at first and later have a rib resection, or, if the symptoms are urgent, the rib resection should be done at once. An open pneumothorax with a small external opening should be closed by suture if the wound is clean, otherwise by a firm dressing or a tampon. An open pneumothorax with a large opening should promptly be treated surgically. If only the thoracic wall is injured, the wound edges should be excised, and the lung sutured into this window. In case the lung also has been perforated, this wound should likewise be excised and sutured and this portion of the lung then fastened into the thoracic window. In order to do these operations satisfactorily it is advisable to have a simple positive pressure apparatus at hand.

119. Is Purgation Justifiable?—Experimental observations made on animals have convinced Alvarez that purgatives should not be given before operations because some of the purgatives owe their effects to the fact that they are irritant poisons that must be removed quickly from the body. Others act by interfering with intestinal absorption and by upsetting the balance of salts. In either case they bring about pathologic conditions. The body is weakened and not strengthened. The dehydration of the body and the upset in salt balance are bad, particulary before an operation in which there may be hemorrhage and vomiting. With magnesium sulphate, there may be an increased amount of fluid in the bowel to disturb those who want it empty. In operations on the colon, liquid contents are harder to control mechanically than are solid masses. There is an increased growth of bacteria. There is some evidence that there is an increased absorption of toxins, and a greater permeability of the mucous membrane to bacteria. Undigested food may be carried down into the colon to supply increased pabulum for the bacteria. By weakening some parts of the bowel and making others more irritable, the even flow of material from stomach to anus is rendered impossible. Whether from disturbances in motility, in absorption, in the circulation, or in the bacterial conditions, there certainly is a tendency to flatulence and distention.

When the bowels must move frequently during the night, the loss of sleep is considerable. The purgation is particularly trying if the patient is wearing a large cast, has a broken leg, or other painful lesion which makes each resort to the bedpan an ordeal. If the patient should happen to have some intestinal obstruction, a gangrenous appendix, a badly diseased Meckel's diverticulum, or adhesions forming around some pus, purgation may directly cause death. Purgation makes the bowel react so poorly to drugs that there may be grave difficulties in meeting postoperative emergencies. Emptying the bowel by starvation and purging makes the resumption of colonic activity much more difficult. The colon must be filled and distended to a certain extent before it will empty.

The fact that children and nervous women will sometimes begin vomiting during the night, before the operation, Alvarez thinks, shows that the purge must be responsible for some of the postoperative nausea and vomiting. The ether adds the finishing touches to what was begun the night before. It is suggested that food be given as late as possible before operation; that even enemas be avoided if not absolutely necessary; that water and solid food be given by mouth as soon after operation as possible; and that purgatives be avoided after operation as well as before.

122. Puerperal Septic Uteropelvic Thrombophlebitis.—Thrombophlebitis has signs, symptoms, and a clinical evolution which, according to Turenne, permit a diagnosis to be made in the majority of cases. Although in more than half the cases there is a tendency toward subsidence and recovery, the high mortality justifies modern methods of treatment. Surgical intervention, especially ligature of the thrombosed veins, is rational. The transperitoneal route is the preferable one.. Ligation of all the efferent venous trunks of the genital zone is desirable. Resection or evacuation of the thrombus should be resorted to only exceptionally. The results obtained from direct intervention on the thrombosed veins should encourage new attempts at operations to fix definitely the field of operation. Operations on the veins is contraindicated in cases of permanent bacteremia, in accessible thromboses, and in cases of visceral pyemic localizations.

126. Reconstruction of Common Bile Duct.—Hagler reports a case of operation for acute gallbladder disease; no stones were found, but a markedly diseased gallbladder which had drained spontaneously into the duodenum. Cholecystectomy was performed, during which the common duct was accidentally injured and the duodenum necessarily opened. The duodenum was repaired, a gastro-enterostomy made, and the common duct drained. A duodenal fistula developed on the fourth day and healed spontaneously five days later. A complete biliary fistula persisted after the primary operation, and at the secondary operation this was found to result from a defective bile duct. The loss of a portion of bile duct was produced by necrosis in all probability occasioned by infection and the digestive action of duodenal contents. A Sullivan's reconstruction was successfully performed with excellent immediate results. Death occurred over seven months after the reconstructive operation, being caused by multiple liver abscesses, secondary to ascending infection of the bile passages. Secondary stricture of the ducts did not occur. Hagler says that in certain cases of bile duct reconstruction necessity may compel the employment of Sullivan's operation, which, while not a method of choice, may prove to be of great worth. Two dangers militate against a permanent satisfactory result: (*a*) stenosis of the new formed duct by cicatrization; (*b*) stone formation and ascending infection of bile passages. Danger of cicatricial stenosis may be minimized by keeping the tube in the newly formed duct sufficiently long to allow complete epithelialization and thorough establishment of the newly formed duct. This period depends on the extent of the gap to be bridged. Calculus formation and infection of the biliary passages may be in a measure guarded by: (*a*) Avoiding nonabsorbable suture. (*b*) Not allowing the tube to remain permanently. If the tube does not pass at the proper period it should be removed by operation. Both spontaneous passage and operative removal may be facilitated by allowing the tube to project a few inches into the duodenum. A T tube which can be removed at will without operation may be superior to the tube as employed by Hagler. (*c*) Formation, if possible, of a valvular opening into the duodenum. Gastro-enterostomy is advised as a rational procedure in cases in which fears are entertained for the security of a duodenal repair.

Tennessee State Medical Association Journal, Nashville

June, 1918, **11**, No. 2

127 Swinging of Pendulum. R. McKinney, Memphis.—p. 49.
128 Medical Profession and Part It Plays in War. V. C. Vaughan, Washington, D. C.—p. 53.
129 Sanitary Conditions in Camps and Cantonments. V. C. Vaughan, Washington, D. C.—p. 56.
130 Medical Reserve Corps and Medical Military Activities. F. F. Simpson, Washington, D. C.—p. 59.
131 Surgery on Battlefield. W. J. Bell.—p. 61.
132 Neurologic Surgery; Diagnosis and Treatment of Brain Injuries. W. Sharpe, New York.—p. 67.

West Virginia Medical Journal, Huntington

June, 1918, **12**, No. 12

133 Necrology. C. H. Maxwell, Morgantown.—p. 441.
134 Elkins Situation During Past Three Months. A. M. Fredlock, Elkins.—p. 453.
135 The Eye. G. M. Burton, Weston.—p. 455.
136 Difficulties in Diagnosing Accessory Sinus Inflammations. G. A. Hinnen, Cincinnati.—p. 465.

Wisconsin Medical Journal, Milwaukee

June, 1918, **17**, No. 1

137 Treatment of Senile Cataract. H. Gifford, Omaha.—p. 1.
138 Advantages and Disadvantages in Use of Metallic Bone Plates for Fracture. K. Doege, Marshfield.—p. 10.
139 Bone Grafting in Treatment of Fractures. F. J. Gaenslen, Milwaukee.—p. 15.
140 Roentgen Ray as Aid in Reduction and Treatment of Fractures. J. A. Jackson, Jr., Madison.—p. 19.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 1, 1918, **1**, No. 2996

1 Care of the Tuberculous Soldier. P. H. S. Hartley.—p. 609.
2 Roentgenographic Pelvimetry. W. R. MacKenzie.—p. 612.
3 *Part Played by Concomitant Infection with Anaerobic Organisms (Other than B. Tetani) in the Causation of Tetanus. W. J. Tulloch.—p. 614.
4 Aneurysm of Third Part of Left Subclavian Artery Treated by Ligature of Second Part. H. H. Brown.—p. 617.

3. Concomitant Anaerobic Infections in Tetanus.—Tulloch claims that there is good ground for believing that the ancillary part played by *B. welchii* in the causation of tetanus is clearly defined. The capacity of this organism for doing harm can almost be eliminated by the use of *B. welchii* antitoxin. The *Vibrion septique* may also play a part in the production of tetanus. Therefore, antibodies to the toxins of *B. tetanus*, *B. welchii* and *Vibrion septique* should be included in all serums employed for the prophylaxis of tetanus. Tulloch does not believe that such a serum would absolutely eliminate tetanus because other organisms, doubtless, may play a part in the causation of tetanus, especially *B. edematiens*.

Indian Medical Gazette, Calcutta

April, 1918, **53**, No. 4

5 *Autogenous Oral Streptococcal Vaccines in Treatment of Seventeen Cases of Sprue. L. Rogers.—p. 121.
6 Present Position of Treatment of Syphilis. H. S. Matson.—p. 126.
7 Prevention of Malaria in Cantonments. P. Hehir.—p. 130.
8 Prevention and Treatment of Malaria. T. S. Ross.—p. 134.
9 How to Examine Recruits. J. F. James.—p. 136.
10 Laying Out of Large Military Camp. C. C. Murison.—p. 138.
11 Treatment of Carbuncles and Boils. K. J. Dikshit.—p. 139.
12 Injection of Lymph as Protector Against Smallpox. C. F. Fearnside and S. G. Poi.—p. 140.

5. Results of Vaccine Treatment of Sprue.—Seventeen consecutive cases have been treated by Rogers during the last four years. Five more patients with sprue and spruelike diarrhea have been treated in a similar way with autogenous oral streptococcal vaccine, and in each case there was satisfactory improvement. In the great majority of the cases, cultures were made when the tongue or mouth presented soreness or even small ulcers, but success was sometimes obtained during quiescence of the oral symptoms. Glycerin-agar was always used and commonly a nearly pure culture of streptococci was obtained, while they were nearly always the predominating organisms. When uniform surface subcultures had been obtained on sloped glycerin-agar tubes, 5 c.c. of sterile normal saline is added to each tube and heated to 56 C. for one hour, and 0.5 per cent. phenol added. After mixing by separating the colonies with a sterile platinum loop it is put up in from 0.5 to 2 c.c. doses, the approximate count being about 100 million per cubic centimeter; a 0.5 c.c. dose was always a safe one to begin with. If the reaction was slight or absent, as was almost always the case, 1 c.c. was given after five days and repeated weekly until there was little or no reaction, and when it was increased to 1.5 c.c., and eventually, if necessary, to 2 c.c., ten days' interval being allowed between the last mentioned doses. The injections are nearly painless and usually have to be continued for from three to six months in typical cases, and occasionally for longer with intervals of omissions. The only drug Rogers used to any material extent in the present series of cases is bismuth salicylate in 15 to 20-grain doses, three times a day at first, but gradually reduced to once a day when the stools fall to one or two daily. In a few of the worst cases a milk diet was given at first, but under the vaccine treatment Rogers found it possible to increase the diet more rapidly than can usually be done under other methods. Forty per cent. of the patients were cured; 40 per cent. were greatly improved; 18 per cent. were improved. Only one patient was not improved.

Lancet, London

May 25, 1918, **1**, No. 4943

13 Teaching and Training in Hygiene: III. Training of Nonmedical Public Health Workers. H. R. Kenwood.—p. 727.
14 *Technic of Infected Wound Closure. F. B. Gurd.—p. 731.

15 Two Fatal Cases of Estivo-Autumnal Malarial Fever Occurring in England. A. J. Hall, E. H. Williams and J. S. C. Douglas.—p. 734.
16 *Method for Drainage of Deep Wounds of Thigh. W. S. Handley and P. J. [illegible]—p. 735.
17 Skin Grafting in Treatment of War Burns. C. P. G. Wakeley.—p. 736.

June 1, 1918, 1, No. 2996

18 *Blood Transfusion in War Surgery. L. B. Robertson.—p. 759.
19 Acidosis of Shock and Suspended Circulation. A. E. Wright and L. Colebrook.—p. 763.
20 Pulmonary Fibrosis, Tuberculous and Nontuberculous. G. T. Hebert.—p. 765.
21 Intrapelvic Abscess, Complications of Gunshot Wounds of Buttock. W. Thorburn and G. Rutherford.—p. 767.
22 Anesthesia in Still Infected Wounds. H. [illegible]—p. 768.
23 Case of Amebic Abscess of Liver and Brain with No Previous History of Dysentery. T. D. M. Stout and D. E. Fenwick.—p. 769.

14. Technic of Infected Wound Closure.—Gurd believes that a more aggressive and direct method of treatment of infected compound fractures than is commonly employed in the home hospitals is indicated. The technic introduced by Rutherford Morison and Carrel, when properly employed, have each proved their usefulness in the hospitals in France. In a series of thirty characteristic cases the author has applied a modification and combination of these methods with gratifying results. The method has shown itself to be safe, not difficult to carry out, and has been followed by satisfactory results in a large proportion of cases. The treatment has consisted in excision and cleansing of original wound, if not already accomplished. Adequate incision of inflamed area is made, tubes are introduced, and discontinuous instillation according to method introduced by Carrel.

So soon as necrotic fascia, muscle tissues, etc., have separated or have been excised and profuse suppuration more or less controlled, the treatment is changed. The surface of the wound and the surrounding skin is thoroughly cleansed with soap and water and bathed with spirit. The wound is then dried, an excess of bismuth iodoform paste (Morison) is placed over the surface and into all pockets and bone cavities. Gauze gently wrung out of liquid petrolatum, and containing in its center a mass of bismuth iodoform petrolatum paste is placed everywhere in contact with the tissues. This is substantially the technic suggested by Morison with the addition of the paraffin gauze pack. This was commenced with the view of inducing the bismuth iodoform mixture to insinuate itself into all interstices of the wound, and appears to have proved its usefulness. Wounds so treated, even though they have been previously discharging freely, do not require dressing more often than once in five to fifteen days. Pain in injured limb and marked constitutional evidence of infection indicate necessity of further interference. Even though there be moderate staining through the dressings, the wound need not be disturbed, as the dressings do not tend to become foul, nor do proliferating granulations tend to invade, or become adherent to the paraffined gauze. In several cases it has been found useful in phlegmonous wounds receiving Carrel-Dakin instillations to protect portions of wound less severely infected by means of a bismuth iodoform petrolatum paste paraffin gauze pack.

The advantages claimed are: 1. Lessening of discomfort and pain to the patient as a result of increase in interval between dressings and shortening of open wound period. 2. Improvement in functional result in consequence of (a) less frequent disturbance of bone fragments during the dressing stage and the earlier application of complete immobilization in cases in which this is indicated. (b) A diminution in the number of adherent painful scars and functional disturbances. (c) Earlier opportunity for secondary operations such as nerve and tendon suture and massage, etc. 3. Early transformation of patients from the dressing to observation class of men. 4. Shortening of hospital days per patient and consequent increase in the usefulness of hospital beds. 5. Economy of dressing material, both by reason of the infrequency of dressings and by shortening of the dressing period.

16. Drainage of Wounds of Thigh.—The drainage of a deeply infected thigh is a problem which has not yet received the attention due to its importance. Is it or is it not possible to arrest the spread of infection in the intermuscular planes by well devised incisions? The largest and most important intermuscular space, and the one most easily opened up, is the space between the vastus externus muscle and the crureus. This space runs the whole length of the thigh and communicates with many of the other intermuscular spaces. It occurred to the authors that if this space could be thoroughly opened up the problem of drainage of the deep thigh tissues would be largely solved. Anatomic conditions favor the drainage of this space by an incision which does not divide any important structure or subsequently impair in any way the functions of the thigh.

The posterior limit of the space in question corresponds to the external intermuscular septum and lies on the posteroexternal aspect of the thigh in a position ideal for drainage by gravity as the patient lies in bed. The incision is made along at least two thirds of the length of the thigh and divides the fascia lata immediately behind the septum. The tissues are opened up in the place between the external intermuscular septum and the hamstring muscles until the linea aspera is reached. The external intermuscular septum is now cut through along its line of attachment to the linea aspera and its prolongations above and below. Drainage tubes or Carrel's tubes are now inserted, but the wound itself gapes so considerably that it is probable in many cases they will prove unnecessary. Incidentally the incision abolishes the constricting action exerted on the deep tissues of the thigh by their tight sleeve of inextensile fascia. On anatomic grounds and in the facts of one case the authors suggest that in a series of grave penetrating wounds of the thigh where primary excision of the wound has failed and sepsis is threatened colleagues on the lines of communication should adopt the plan of complete separation of the vastus externus from its origin. It will then be seen whether the method is applicable only to wounds of the region of the vastus externus, and with what degree of success and whether it is also successful as applied to wounds of the adductor region.

18. Blood Transfusion in War Surgery.—Of the indirect methods of blood transfusion there are three in general use at present on the British front: (1) syringes and cannulas; (2) paraffined glass containers; (3) anticoagulants (citrate method). Robertson says that to estimate accurately the value of the procedure at the front several factors other than the purely clinical must be considered, notably the distance of the station from the firing line, and the difficulties and time of transport of the wounded to the station. The sixty-eight cases cited by the author comprised the following: Primary hemorrhage (fifty-seven cases); (a) life saving (evacuated to base hospital in good condition) thirty-six cases; (b) immediately beneficial but died from shock, eight cases; gas gangrene, five cases; pulmonary embolism, one case; capillary bronchitis, one case; (c) no benefit, four cases; (d) harmful (hemolysis), two cases. Secondary hemorrhage: Nine cases of this type received blood transfusion; six recovered. Of the three that died, one died of hemolysis (following a second transfusion), one of gas gangrene three days after transfusion, and one of streptococcus septicemia one month after transfusion. The last two cases had derived immense benefit from the transfused blood before they succumbed to the infection. Severe carbon monoxid poisoning: The two cases in which transfusion was done were among a number of men buried in a dugout in which certain combustible material caught fire. Venesection, with the removal of 1,000 c.c. of blood in two stages, gave moderate relief, but their condition remained grave and they were still of a bluish-gray color. The blood was almost black and of a peculiar syrupy consistency. Blood transfusion (1,000 c.c.) made no immediate improvement, but the following day improvement was evident and the cases progressed to recovery.

Practitioner, London
June, 1918, 100, No. 6

24 Scalp Flaps and Depilation in Plastic Surgery of Face. P. P. Cole.—p. [illegible]
25 *Method for Radical Cure of Inguinal Hernia (Darn and Sure Method). W. S. Handley.—p. [illegible]
26 Dreams. F. P. Weber.—p. [illegible]
27 Treatment and Degree of Curability of Neurasthenic Pain. S. H. Habershon.—p. [illegible]

28 Treatment of Fecal Fistula. J. Taylor.—p. 487.
29 Results of Mechanotherapeutics of Septic War Wounds. E. F. Cyriax.—p. 491.
30 Case of Ascaris Infection. G. Ward.—p. 503.
31 *Gunshot Wound of Abdominal Cavity Treated with Ichthyol and Glycerin. C. W. Duggan.—p. 505.

25. **Darn and Stay-Lace Method in Treatment of Hernia.**—After he has separated the sac from the cord and removed the former, Handley proceeds to the insertion of a slack "stay-lace" of stout silk, *filling up the triangular interval, bounded above by the lower edge of the conjoined tendon, below by the edge of Poupart's ligament, and externally by the internal abdominal ring.* The needle is entered through the edge of the conjoined tendon, immediately internal to the internal ring, then at a point vertically below it takes up Poupart's ligament from within the inguinal canal. It now returns and takes up the conjoined tendon, then Poupart's ligament at a succession of points approaching nearer and nearer to the pubic spine. Having come to this point it now retraces its steps, taking up each time either the conjoined tendon or Poupart's ligament at points intermediate to the stitches already inserted and successively nearer and nearer to the internal ring. Then the ends are knotted together. But it must be specially noted that the stitch is not pulled tight; it is left quite lax. Much care must be exercised during the tying of the knot to insure that the stitch does not run up taut during the process, and that on the other hand the *knot is very securely tied.* It will simplify this step if, during the tying of the knot, the assistant grasps the threads just behind the knot with two pairs of nonserrated forceps. Serrated forceps are apt to injure and weaken the silk where they grasp it. By the insertion of this slack "stay-lace," a *sort of entanglement of silk is formed which prevents any descent of a future hernial sac.*

The cord which has been dragged upward is replaced and the external oblique is sutured by a few interrupted silk sutures. The size of the external ring is reduced if necessary. Now comes the process of "darning" which aims at strengthening the external oblique. The surface of the external oblique aponeurosis is cleared down to Poupart's ligament, upward 2 inches beyond the cord, outward well beyond the internal ring. The cleared area is now darned exactly as if it was a weak spot in a stocking. The threads are inserted parallel to the intercolumnar fibers and at right angles to the main fibers of the external oblique aponeurosis, beginning at the upper and outer angle of the cleared area. When the darn is complete the ends of the stitch are simply cut off at points quarter inch from their points of emergence from the aponeurosis. There is no need to secure them *in any way by a knot.*

31. **Gunshot Wound of Abdominal Cavity Treated with Ichthyol and Glycerin.**—Duggan points out that the efficient *treatment of gunshot wounds* involves the two principles of antisepsis and osmosis. These two principles are, he claims, fulfilled by a combination of ichthyol and glycerin which he has been using for nearly three years. Duggan cites the case of a soldier who had received an abdominal wound which failed to heal under every method of treatment used in various military and civil hospitals. Ten months after the injury Duggan saw him. He had an inflamed scar at exit; evening temperature 101.2 F., no rigors; equal parts of ichthyol and glycerin were applied to scar preparatory to operation next day. During the night the scar gave way, and a large quantity of pus, with a strong fecal odor, escaped; the abscess cavity was syringed out with alcohol and the wound was dressed with equal parts of ichthyol and glycerin; the wound was dressed again at night. A probe could be passed into the abdominal cavity in the direction of the entrance scar for a distance of 5 inches. These dressings were continued for three weeks when the wound healed and the patient was discharged.

Annales de Médecine, Paris

January-February, 1918, 5, No. 1

32 *Sensibility of Bone to Tuning Fork. L. Bard.—p. 1.
33 *Bacteriology of Tropical Sores. M. Gougerot.—p. 9.
34 *Paralysis of Vasomotor Origin. R. Cruchet, F. Moutier and A. Calmettes.—p. 22.
35 *The Cerebrospinal Fluid in Typhus. D. Daniélopolu.—p. 44.
36 *Vaccine for Cerebral Abscess. Villandre and Rochaix.—p. 53.
37 Mixed Typhoid and Paratyphoid. G. Etienne.—p. 63.
38 Present Status of Epidemic Poliomyelitis. J. Paraf.—p. 73.

32. **Sensibility of Bone to Vibrations of Tuning Fork.**—Bard presents evidence to demonstrate that bone conduction of the vibrations of a tuning fork is more a matter of the sensibility of the bone than has heretofore been appreciated. The acoustic factor predominates at first and arrests attention, when the Weber test is applied to the ear, but as the tuning fork vibrations grow less intense, the tactile perception predominates, and persists after the acoustic has died out. The *duration of the perception of the sonorous vibrations* thus depends on the sensibility of the skull bones, and aural surgeons should revise their qualitative tests of the hearing, taking this fact *into account.* It naturally deprives the Schwabach test of all value, and the Gellé test is instructive only when the attention of the subject has been called to the necessity for distinguishing between *the acoustic sensation,* and the tactile sensation which the Gellé test does not modify. In numerous deafmutes and totally deaf persons, including one with cerebral neurofibromatosis, confirmed by *necropsy,* which had totally destroyed the auditory and vestibular nerves, Bard has found that the vibrations of the tuning fork placed on the skull are plainly perceived. By studying this on himself and on others with normal hearing he determined certain laws regulating conduction of vibrations in different *bones throughout the skeleton,* and the modifications induced by disease, especially by tabes.

33. **Importance of Ordinary Bacterial Skin Diseases in Tropical Ulcers.**—Gougerot's extensive experience among the colonial troops now on active service in France has demonstrated that in *tropical regions* simple bacterial skin lesions are often assumed to be typical tropical ulcers, Delhi sore, craw-craw, etc. On this mistaken diagnosis they fail to get proper treatment, and they drag along for months. Among the typical cases of ordinary streptococcus or staphylococcus lesions described is one of a physician previously practicing in Africa whose alleged craw-craw of seven months' standing subsided at once when treatment as for an ordinary bacterial *dermatitis* was applied, using pastes instead of salves, gauze instead of impermeable dressings, reducing intake of fluids, avoiding much perspiration and substituting *oil or lard for petrolatum.* Bacterial dermatitis is *common* under war conditions and in infants. When duly recognized and *simple inexpensive treatment* applied, the supposed intractable eczema, syphilitic manifestations or exfoliating dermatitis, often promptly disappears.

34. **Nontraumatic Paralysis of the Arm.**—Three cases are described of nontraumatic paralysis of one arm developing abruptly after several hours' exposure to cold and wet, on sentinel duty, crouching in the snow for four hours. After sleeping in their wet clothes the men woke with sensations "as if the hand was asleep," and cyanosis testified to the progressive vasomotor disturbances. *The hand was contracted* to form a shallow cup. The tests show that the vasomotors play the predominant rôle in the disturbances. Under hot baths twice a day improvement was realized, and in five or six months nearly normal conditions were restored. If the paralysis should return with cold weather, it will be easy to resume the hot baths.

35. **The Cerebrospinal Fluid in Typhus.**—Daniélopolu here reports study of 142 cases. The fluid was more or less yellow in forty-eight cases during the second week. Cellular reactions also indicate that the typhus toxins have a special action on the tissues of the nervous system and the cerebral blood vessels, evidenced by the mononucleosis, increased albumin, and positive Noguchi test.

36. **Vaccine Therapy of Abscess of the Brain.**—Villandre and Rochaix found operative measures effectual in treatment of 47 of the 61 cases of infectious complications *following* a war wound of the skull, among 450 *skull* wound cases. In the 14 other cases, an inaccessible abscess developed in the brain. A cure was realized in all of the 3 cases given autogenous *vaccine treatment,* although the abscess returned later in one of the cases. Nearly 50 per cent. died of the 11 not given the vaccine therapy. The *Staphylococcus aureus* was

cultivated almost constantly from the projectiles and scraps extracted from the skull wound, even in those that healed apparently aseptically. In treatment of brain lesions, filiform drainage proved most effectual, that is, with horse hairs and a wire loop, but even with this the cavity tends to close up so that puncture has to be systematically repeated. One of the men was thus punctured every four or six days over a period of three months. The wire permits roentgen control also.

Bulletin de l'Académie de Médecine, Paris

May 14, 1918, **79**, No. 19

39 *Ventilating System in Contagious Ward. J. Renault.—p. 368.
40 *Wire Ligation for Pseudarthrosis. E. Estor.—p. 370.
41 *Treatment of Malaria. S. Gréhant.—p. 372.
42 The Cerebrospinal Fluid After Concussions. Mestrezat, Bouttier and Logre.—p. 373.

39. **Ventilation of Contagious Ward.**—Renault gives figures showing the reduction in the mortality in the measles and scarlet fever wards since a system of ventilation has been arranged which renews constantly the air at the rate of once and a half per hour. The air is filtered through a thick layer of cotton; it enters the room back of the radiators and escapes through glass blinds, the strips of glass horizontal, installed above the windows.

40. **Treatment of Pseudarthrosis.**—Estor warns that silver wire is liable to stretch and break when buried in the tissues; iron wire is better for the purpose. With pseudarthrosis from any cause, he freshens the end of the stump to make a perpendicular plane surface. A wire, about 80 cm. long, is doubled and wound tight around the stump, nicks keeping it from slipping. Each stump is thus enclosed in a tight wire ring and the ends of the wires are all twisted together thus coaptating the stumps. The bone is strengthened by the wire ring, instead of being weakened, as when the wire bores through the bone, while the twisted ends form a metal frame to hold the stumps in place. In two cases of aseptic suture the wire was tolerated by the tissues, but in his eight other cases he had to remove the wire after consolidation.

41. **Treatment of Malaria.**—Gréhant relates that in his service in Africa, four years in the Soudan and five years in Morocco, he has always succeeded in apparently eradicating malaria by his practice of a daily intramuscular injection of 0.75 or 1 gm. quinin sulphate (according to the patient's size) for three consecutive days when the temperature reaches 39 C. (102.2 F.). If after a time, the temperature goes up again, he gives a new series of three injections, in the same dose. In a camp of German prisoners of war in Morocco, he had every man whose temperature ran up to 39 C. inscribed on a special list. When twenty names were on the list, he started the series of three injections, only fifteen minutes being required to inject the whole group.

Bulletins de la Société Médicale des Hôpitaux, Paris

April 12, 1918, **42**, No. 12

43 Primary Tricuspid Insufficiency. C. Laubry.—p. 327.
44 *Lethargic Encephalitis. A. Chauffard and Bernard.—p. 330.
45 *Preventive Serotherapy in Measles. Nicolle and Conseil.—p. 336.
46 *Pneumonia from Night in Cellar. Netter and Triboulet.—p. 338.
47 *Rubeola in the Troops. Nobécourt and Richet.—p. 339.
48 Cirsoid Aneurysm and Raynaud's Disease. F. Ramond and A. François.—p. 342.
49 Ptosis of Liver, Spleen and Stomach from Interposed Small Intestine. F. Ramond, Gernez and P. A. Carrié.—p. 344.
50 Generalized Diphtheric Paralysis with Meningeal Reaction. L. Legendre and L. Cornil.—p. 347.
51 Acute Leukemia in Young Man; Fatal in Three Weeks. L. Giroux and M. Verdier.—p. 352.

44. **Lethargic Encephalitis.**—See London and Paris letters, June 22, p. 1963. The discussion on Netter's cases and some observed by Chauffard suggests that the same cause inducing the lethargic encephalitis may be responsible for a certain proportion of cases of hemiplegia, aphasia and mania. It is possible also that poliomyelitis virus may localize at different points, and induce symptoms suggesting encephalitis or polyneuritis or meningitis or cerebellar ataxia or peripheral facial paralysis.

45. **Preventive Injection of Measles Convalescent Serum.**—Nicolle and Conseil injected the serum from the oldest child in a family of four, at the seventh day of convalescence from measles, hoping thus to ward off the infection from a boy of 2, the youngest in the family. He did not develop the disease although constantly with his three brothers who all developed the disease in turn in the course of three days. The injection was made the tenth day after the first symptoms in the first child.

46. **Pneumonia After a Night in the Cellars.**—Netter reports twenty-one cases of pneumonia in children taken down into cellar shelters for the night.

47. **Rubeola in the Troops.**—Nobécourt says that about seventy cases of rubeola have occurred in his division. Any tendency to epidemic occurrence was promptly aborted by twice daily medical inspection and isolation.

Paris Médical

April 20, 1918, **8**, No. 16

52 *Simulation by the Insane. Laignel-Lavastine and P. Courbon.—p. 305.
53 *Cinchona in Malaria. P. Baufle.—p. 309.
54 *Prevention of Talipes Equinus, etc. Audion.—p. 316.

52. **Simulation of Insanity.**—This article warns that evident simulation of insanity does not exclude a psychopathic basis.

53. **Cinchona in Treatment of Malaria.**—Baufle has found cinchona a valuable adjuvant or substitute for quinin in many cases of malaria. The patients all prefer it to quinin, and his experience in fifty-six cases demonstrates its value, only five of the men having any further attacks after five days of treatment. In a parallel series of twenty-nine cases with quinin treatment, three had attacks afterward. The daily dose of cinchona was four cachets of 0.75 gm. each—a total of 3 gm. of the powder, and 120 c.c. of a 5 per cent. decoction of the powder—a total of 6 gm. He has this entire daily dose taken in his presence in the morning, paying no attention to impending attacks.

54. **Prophylaxis of Talipes Equinus, etc.**—Audion insists that after a sprain of the foot and ankle or war wound of the region, the men must not be allowed to step on the foot as long as this causes pain. When walking is painful, the men distort the foot to ward off the pain; the muscles are stretched and incurable talipes equinus becomes installed. The men must either be kept in bed until they can step on the foot without pain, causing them to raise the heel, or they must be fitted with a plaster boot holding the foot not at a right angle but in slightly talus flexion. The talus position is indispensable in immobilizing the foot, as the ordinary right angle position does not overcome the resistance of the extensors of the foot, the main factor in the equinus deformity.

Presse Médicale, Paris

May 23, 1918, **26**, No. 29

55 *Phases of Uremia. F. Widal, A. Weill and P. Vallery-Radot.—p. 261.
56 *Data in Pulmonary Tuberculosis. P. Merklen.—p. 262.
57 *Extragenital Syphilitic Lesions. M. Pinard.—p. 263.
58 Physiologic Sugar Solutions. G. Lyon.—p. 264.

55. **Uremia in Chronic Nephritis.**—The symptoms from retention of chlorids with chronic nephritis can be dispelled by restricting the intake of chlorids, but the symptoms from retention of nitrogen are always menacing. Even when there are no symptoms of azotemia, the accumulation of urea in the organism can be demonstrated by the urea content of the blood. The prognosis of the disease and the duration of its evolution can thus be foretold from the urea content of the blood, and this with a precision rarely attained in the clinic. Study of kidney patients over long years has shown that the azotemia passes through a set of phases, from the onset to death, each of which has its special prognosis. When the ureosecretory constant is persistingly high but the urea content of the blood is within normal range, this may be considered the premonitory phase. The second phase is when the urea content of the blood ranges between 0.50 and 1 gm. The urea is evidently accumulating in the organism; another step has been taken along the road of ureosecretory disturbances. This initial azotemia may retrogress, but often it persists a very long time or passes rapidly into the next phase. But as long as it has not passed beyond 1 gm., the organism seems to adapt itself to this azotemia and it is

impossible to foretell the duration of the disease. The clinician should not let his prognosis be influenced by a higher constant, even when it indicates a pronounced deficit in the functional capacity of the kidneys. Cases are cited here which confirm anew that life can be maintained without apparent disturbances even when only a minimal area of the parenchymas are left. But when repeated examination shows that the azotemia is permanently above 1 gm., then the condition is extremely grave, and when 2 gm. is reached and passed, a fatal termination impends, the interval the shorter, the higher the urea content of the blood.

56. **Pulmonary Tuberculosis.**—Merklen classifies in four groups the men suspected of tuberculosis. His classification is based on the existence or lack of parallelism between the local and the general symptoms, and on the analogy between the objective symptoms in the course of stationary and of progressive tuberculous lesions from parenchymatous congestion, with or without bronchiolitis. The first of the four classes comprises the men with parallel general and local findings; the second those with general but slight or no local findings. Those with slight local findings are kept for closer examination. In the others the diagnosis is evident at a glance. The third group comprises the men with slight or no general symptoms but characteristic local findings. This group also requires prolonged study. It includes the numerous cases of tuberculosis developing by *petites poussées évolutives.* This method of evolution by waves is the explanation of the discrepancies so often noted between the man's clinical record and the findings of the moment. His disease progresses by a succession of phases of aggravation and improvement. The aggravation may be in the tissue modifications or in the toxemia, so the general symptoms or the local manifestations may predominate at different times, and the phase of improvement may reach an actual cure by sclerosis. Or these "pushes" may be slight and brief, and a somewhat prolonged study of the case may be required to demonstrate them. His fourth and last group comprises the cases of tuberculosis with an atypical course, recurring bronchitis, persisting congestion of the lung, chronic bronchitis with emphysema, febrile episodes. The diagnosis of the bacillosis may be very probable even at the first examination, but it generally requires confirmation. He describes further the interpretation of the radiologic findings, and discusses the numerous cases of pulmonary tuberculous lesions arrived at such a phase of healing and torpidity that in the conditions of ordinary life they never would be heard from. But with stress of active service the men grow thin and tire easily, complain of diffuse pains, and lack of appetite, and they "get out of breath" after exertion, but there is no cough or expectoration, and the temperature and pulse are normal. Conditions improve materially under repose, and they do not improve without it. Work or fatigue brings them back again.

57. **Undiagnosed Extragenital Syphilitic Lesions.**—Pinard relates four instructive cases of the spread of infection from an undiagnosed extragenital syphilitic lesion. In one case it was on the under part of the chin and was taken for a goiter for months until a skin lesion suggested its true nature. Another case of razor infection under the chin was not differentiated for two months and a half until swollen glands made swallowing difficult. In another case the retrospective diagnosis of syphilis was made after the man's wife developed symptoms of recent syphilis. The infection of both was traced to a syphilitic who was stationed next to the husband at table and bench.

Progrès Médical, Paris

May 4, 1918, **33**, No. 18

59 Association of Tubercle Bacillus with Acid-Resisting Oospora. A. Sartory.—p. 157.
60 *Primary Operations for War Wounds. A. Demmler.—p. 158.
61 Ethyl Chlorid in War Surgery. H. Vignes.—p. 159.
62 Antityphoid Lipo-Vaccine. C. Pradel.—p. 160.

May 11, 1918, **33**, No. 19

63 Paralysis of Fou Cranial Nerves. C. Roubier.—p. 165.
64 *Medical Problems f Aviation. A. Bernard.—p. 166.

60. **Primary Interve ions for War Wounds.**—Demmler discusses whether it is not dvisable to suture the nerve at once, as soon as the vitality of the tissues permits. Experience seems to be confirming the advantage of this. Tavernier among others has reported three cases in which the nerve was sutured within twenty-four hours of the injury, and the restoration was rapid and remarkable. Demmler urges, further, primary operations on the tendons as a routine measure, thus obviating the retractions and deformities otherwise liable. These primary operations, outside of periods of offensives, might be done at a base hospital not too far back.

64. **Medical Problems of Aviation.**—Bernard remarks that the task of the physician is almost exclusively along the lines of prophylaxis, selection of the candidates and surveillance over them until certain that they are fitted for the service. He insists that this surveillance should be incessant. The physician should live among them, and watch the physical and moral modifications induced by flying, and study each accident minutely to learn how such can be avoided. He says that the training camp should have a commission for study of these problems, including a physiologist, a physician, a surgeon, an ophthalmologist, a neurologist and an ear, nose and throat man.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 4, 1918, **48**, No. 18

65 *Opthalmoscopy with Red-Free Light. A. Vogt.—p. 561.
66 Necessity for Intensifying the Campaign against Goiter and Cretinism. B. Galli-Valerio.—p. 569.
67 Realizable Campaign against Venereal Diseases. Dind.—p. 572.
68 *The Coagulovimeter. A. Fonio.—p. 574.

65. **Advantages for Ophthalmoscopy of Light Free from Red Rays.**—Vogt here reports with illustrations further ophthalmoscopic findings discovered with this special red-free illumination. His first communication was mentioned in these columns, March 30, 1918, p. 964.

68. **Index of Coagulating Property of Blood.**—The principle of Fonio's coagulovimeter is to use as the index the power of the given specimen of blood to overcome the coagulation-preventing action of a given quantity of magnesium sulphate.

Schweizer Archiv für Neurologie und Psychiatrie, Zurich

1918, **2**, No. 1

69 Reciprocal Independence of Muscle Tonus, Tendon Reflexes and Contractures. N. Betchov.—p. 3.
70 Syphilitic Atrophy of Frontal Lobe. M. Düring.—p. 21.
71 Peculiar War Contracture of Hand. R. Bing.—p. 40.
72 Malformations of Cerebellum. R. Brun.—p. 48. Continuation.
73 Tardy Cicatricial Epilepsy. F. Naville.—p. 106.
74 War Functional Nervous Disturbances. L. Schnyder.—p. 116.
75 War Wounds of the Nerves. Long.—p. 130.

Annali d'Igiene, Roma

April 30, 1918, **28**, No. 4

76 Biology of Paratyphoid B Bacillus. G. F. Gardenghi.—p. 161.
77 Pseudodysentery Bacilli. B. Maymone.—p. 173. Conclusion.
78 *Glanders in Felines. M. Carpano.—p. 183. Conclusion.

78. **Glanders in Felines.**—A preceding instalment of Carpano's work was summarized in these columns, April 27, 1918, p. 1267. He here reports supplementary research on dogs and cats.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 21, 1918, **39**, No. 32

79 Infective Jaundice. F. Laureati.—p. 313.
80 Fatal Poisoning from Mercurial Inunctions to Kill Vermin. G. Marangoni.—p. 321.

April 25, 1918, **39**, No. 33

81 *Ulcerative Intestinal Tuberculosis. L. Fioravanti.—p. 327.

81. **Ulcerative Tuberculosis of the Intestine.**—Fioravanti reports a case in which there was spasmodic stenosis from the tuberculous ulcers in the small intestine. Some tuberculous glands were seen in the mesentery corresponding to the region of the stenosis. He made a side-to-side enteroanastomosis in sound tissue above and below the region of the spasm, and the patient was in most satisfactory health, without symptoms from the bowels, when examined two years later. There was no serious pulmonary lesion in this case. In a second case nothing could be found to explain an invagination except a tuberculous lesion in the region, evidently mild but of long standing, with typical ulcerations.

The operation was the same and proved successful in both, but the young woman of the second case succumbed to postoperative pneumonia.

Policlinico, Rome

April, 1918, 25, Medical Section No. 4

82 *Pathogenesis of Diabetes Insipidus. C. Moreschi.—p. 97.
83 Wounds of Peripheral Nerves. S. Ricca.—p. 119. Continuation.

April, 1918, 25, Surgical Section No. 4

84 *Experimental Lesions of the Pituitary Body. A. Chiasserini.—p. 97. Comenced in No. 1, p. 26.
85 *Autografts in Bones of Forearm. L. Losio.—p. 108.
86 Gaseous Infection of War Wounds. V. Calo.—p. 120. To be continued.

82. **Pathogenesis of Diabetes Insipidus.**—Moreschi describes in detail a case of so-called idiopathic diabetes insipidus in a girl of 19, with the urine findings, etc., as modified by intake of water, salt and pituitary extract. He excluded the symptomatic form of diabetes insipidus by giving 10 or 20 gm. of salt. The total amount of urine in the four following days increased materially, although the intake of fluids had been reduced, but the specific gravity did not increase—the reverse of what occurs with symptomatic diabetes insipidus. The girl had attacks of narcolepsy and there was atrophy of the left optic nerve, with left hemianopsia and right optic neuritis, while the pulse was small and slow and the blood pressure low. Analysis of the symptoms and of the effects of various therapeutic measures and comparison with the literature have apparently confirmed the assumption that diabetes insipidus is the result of deficient pituitary functioning with more or less functional modification of the ductless glands, and hence of the work of the vegetative nervous system—an endocrine-sympathetic dystrophy. Other causes for diabetes insipidus may be found in changes in the midbrain, particularly in the floor of the third ventricle, or in changes in the vegetative system in the chest region from compression of the vagus or sympathetic by a tumor or aneurysm. The morbid conditions entailing the deficient functioning in the pituitary body may be from a tumor or chronic inflammatory lesions as well as from tuberculosis or syphilis or sclerosis of the gland.

In the case reported, 1 c.c. of the pituitary extract used seemed to be the optimum, larger doses not showing any better results. The effect was most pronounced about the ninth hour and entirely disappeared in twenty-four hours. The average specific gravity of the urine changed from 1.0016 to 1.0045; the average molecular concentration from 0.20 to 0.39; the elimination of chlorids was slightly checked, while that of phosphates increased from 1.75 to 2.27 gm.; of nitrogen from an average of 21.1 to 25.1 gm. The findings in this case apparently incriminate the pituitary body alone as responsible for these disturbances.

84. **Experimental Lesions of the Pituitary Body.**—Chiasserini has found it possible to induce lesions of various kinds in the dog pituitary body through an opening in the temporal parietal region of the skull. Hyperplastic lesions in the intermediate part induced polyuria, sometimes intense. In the dogs with lesions of the anterior portion, the skin grew thicker and there was proliferation of bone tissue, suggesting the changes of acromegaly. Inflammatory and degenerative processes, leading to complete destruction of the pituitary body, entailed the most typical form of cachexia and asthenia. Inoculation of the sella turcica with the sporothrix or with tubercle bacilli induced progressive changes in the intermediate or anterior portions of the pituitary body, and these were accompanied by remarkable polyuria or symptoms suggesting acromegaly. In the course of this research the effect of artificial pressure in the sella turcica region was also studied. The report on this will follow later.

85. **Auto-Bone Graft in Gap in Ulna and Radius.**—In Losio's two cases, a segment in both bones of the forearm had been destroyed by a shell. The arm was much shortened and a splint had to be worn constantly. A graft was taken from the tibia and implanted in place. In one case the graft was 11 cm. long and 1 cm. thick, and included periosteum and a thin strip of bone marrow. It was slit in two, and one half was implanted in the bed made for it in the ulna, the other half in the radius. In one case there was pseudarthrosis of the ulna. The results were most excellent in both cases, the men recovering the use of the arm. An illustration shows one of the men holding at arm's length a weight of nearly 7 pounds. The date is still too recent for the ultimate results to be known.

Riforma Medica, Naples

April 27, 1918, 34, No. 17

87 *Secondary Venous Hemorrhage. G. Razzaboni.—p. 322.
88 Hair Ball in the Stomach. I. Bruchi.—p. 324.
89 Recent Literature on Hemorrhage during Tonsillectomy. E. Aievoli.—p. 328.
90 *Prophylaxis of Tuberculosis in the Army. E. Maragliano.—p. 332.
91 *Aviators' Sickness. Editorial.—p. 333.

May 4, 1918, 34, No. 18

92 *Clinical Picture with Protozoan Disease. U. Gabbi.—p. 342.
93 Microbicidal Action of Nascent Chlorin and Oxygen. N. Pane.—p. 344.
94 Malocclusion of the Teeth. B. De Vecchis.—p. 347.
95 Occlusion of Colon Flexure. E. Aievoli.—p. 349.

87. **Secondary Venous Hemorrhage.**—Razzaboni remarks that the progress of the medical sciences during the war has rendered secondary venous hemorrhage extremely rare, yet cases are still occasionally encountered. Bacterial action is generally responsible, the bacterial proteolytic ferments weakening the damaged wall of the vein. The hemorrhage generally occurs suddenly, after some effort or manipulation of the region of the wound. If internal, the symptoms are those of any internal hemorrhage. The provisional hemostasis secured by careful packing, not leaving any spaces in which blood can accumulate, may be all that is necessary, leaving the gauze in place for a few days and then removing it cautiously so as not to disturb the thrombotic occlusion of the vessel. This may become organized in time. If this does not suffice, he has found very useful the application of small forceps, seizing the bleeding point in such a way as to fold in a large part of the circumference of the vessel. The forceps are left in place for several days, until they drop off of themselves. The entire cavity around the forceps is packed tight with gauze. If the external wound is not large enough to permit this, he enlarges it enough for the purpose. Suture of the opening in the vein is far more difficult than to use the forceps. A ligature above and below would also prove effectual, but is not always an easy matter in the depths of the wound. If the other measures fail, this has to be done, opening up the tissues to apply the ligatures on the sound vein walls above and below. With internal venous hemorrhage, suture of the opening is always preferable to ligation, if the vein is of large size.

90. **Prophylaxis of Tuberculosis in the Army.**—Maragliano reproduces a notice recently sent out by the Italian minister of war reiterating the importance of excluding from military service all men with any signs whatever of tuberculosis in any form or period, and discharging from the army all in this category. The minister declares that the large number of soldiers that have to go to the hospitals or be invalided on account of tuberculosis, soon after their enrolment, shows that his directions have been disregarded, and that men have been passed for military service who should have been excluded. He expatiates on the evils resulting from this, the crowding of hospitals and trains, the unnecessary expense, the expense to the state in pensions, etc., but beyond all this the evil to the man himself. His health might have been ample for civilian life, but the exigencies of warfare have upset the balance and thrown him a burden on society. The minister impresses on the boards of review, the medical inspectors and the hospitals to watch out for men suspected of tuberculosis or who are supposed to have recovered from tuberculous lesions and have them sent for examination to the board of revision.

Maragliano comments with approval on the minister's words, and says that they materially simplify the task of the medical examiners. The latter do not have to study each individual case to determine whether the good general condition turns the scale in favor of fitness for active service. No. If they demonstrate a tuberculous infection in the candidate, this excludes him. He may be in apparently perfect health, but the government does not wish to upset the balance which renders him useful to himself and to society. Experience has demonstrated that otherwise he becomes useless to himself, to the army and to society, and becomes a source of danger to the service and to society. Maragliano emphasizes further that the various official circulars on the question have made it plain that the government does not wish to admit to or to retain in the army men affected with tubercle bacillus infection, even in its rudimentary forms, even when it has not yet determined any anatomic alterations. This is precisely the case in the clinical picture called "pretuberculosis"; certain findings prove the existence of tuberculous infection, but with our present means of clinical and radiologic observation we are unable to detect any anatomic changes. This clinical picture is equivalent to "latent" tuberculosis. The official announcements, he continues, are based on the teachings of pathology and the modern clinic in the matter of tuberculosis. Time and experience have demonstrated that tubercle bacillus infection, even if it has not yet created changes in organs, usually explodes under the fatigues and vicissitudes of military life, and the war department, in concordance with the two houses of parliament, has decided that it does not wish to have this happen. Hence it does not wish to have enter the army or stay in the army those in whom this may happen or it has already happened. Consequently the official announcement is positive, absolute; nothing is left to the judgment of the military medical officer or examiner, as with other morbid contingencies. If the man has tubercle bacillus infection of any kind, he is not wanted in the service. But provision is made for expert examination and revision to eliminate all doubts.

91. **Prevention of Aviator's Sickness.**—Prof. A. Aggazzotti proposes the term "hypobaropathy" to designate the disturbances experienced by aviators at high altitudes. The disturbances are the result of the rarefied air, and are the same as those experienced by mountain climbers, owing to the low barometric pressure. Acute pain in the normal ear is not a direct symptom from this cause, but is indirectly due to it, as he has explained. The conditions producing it are corrected by making swallowing movements, working the jaws, and yawning. There may be minute bleeding from the superficial vessels in lips and nasal mucosa, but the cold prevents extensive hemorrhage, and such has never been observed.

He accepts Mosso's explanation of the disturbances in rarefied air as due to changes in the gases of the blood, especially impoverishment of oxygen and of carbon dioxid. The proof of this assumption is provided by the absence of these disturbances, even in extremely rarefied air, if the blood is kept supplied with oxygen and carbon dioxid. In his own recent experiments at the Institute of Physiology at Turin, he was able to bear perfectly a barometric pressure of 140 mm.—which corresponds to an altitude of 13,491 meters—when he breathed a gas mixture consisting of 67 per cent. oxygen and 12.7 per cent. carbon dioxid. He used in this way 11 liters of the mixture, breathing naturally, without the slightest disturbance of any kind. With a mixture consisting of 67.8 per cent. oxygen and 13.4 per cent. carbon dioxid he found that all was well with him even at a barometric pressure of only 122 mm., corresponding to 14,589 meters. A higher altitude than this has never been reached in aeroplanes or in the pneumatic cabinet. His mind was clear, vision normal, his movements certain, with no tremor of the lips or sensation of heat in the face.

Another fact which aviators should bear in mind is that when they begin to feel disturbances from the rarefaction of the air, if they will make muscular movements, this improves the oxygenation of the blood, as respiration becomes more active, and carbon dioxid is produced in the muscles and passes into the blood. The question now is to provide the simplest and most convenient means for utilizing this concentrated gas mixture at high altitudes. The official board of aeronautics has research now under way at the uffici psico-fisiologici di aviazione at Turin and Naples, seeking to solve the problem of a suitable mask and recipient.

92. **Clinical Differences Between Protozoan and Bacterial Diseases.**—Gabbi mentions as the chief differences the absence of complications with the protozoan diseases, especially on the part of the heart, joint—lungs—except in the later stages—and of serous membranes, with the exception of trypanosomiasis and one variety of relapsing fever. Polyserositis has never been reported with a protozoan disease. Rashes are more common than with bacterial diseases, and kidney involvement is relatively common. Other features are the gravity of the course and the fact that each seems to have a specific remedy. The protozoan diseases occur in epidemic form, in spring, summer or fall, and are unknown in cool regions. He urges the general practitioner to trust to his impressions in dubious cases, instead of waiting for laboratory confirmation of a protozoan disease.

Brazil Medico, Rio de Janeiro

March 23, 1918, 32, No. 12

96 Eugregarina Parasites of Arthropods. IV. C. F. Pinto.—p. 89.
97 *Epinephrin Content of Suprarenals from Medicolegal Standpoint. O. Sampaio.—p. 90. Conclusion.
98 Painful Talipes. F. Luz.—p. 93.

97. **Epinephrin Content of Suprarenals from Medicolegal Standpoint.**—The first instalment of Sampaio's article was summarized in these columns, June 29, p. 2058. He here gives the findings in twenty-two cadavers. The epinephrin content of the extract of the suprarenals ranged from 0.50 to 0.16 per thousand in cases of sudden death, while the range in cases with agonal dying was only from 0.12 to 0.01 per thousand. It seems, therefore, that a strong concentration, for example, 0.33 per thousand, excludes the assumption of a lingering death, while below 0.05 per thousand excludes sudden death in the absence of disease of the suprarenals.

Gaceta Medica de Caracas

April 15, 1918, 25, No. 7

99 *Twenty-Fifth Anniversary of the Gaceta. L. Razetti.—p. 68.

April 30, 1918, 25, No. 8

100 *History of Medicine in Venezuela. F. A. Risquez.—p. 79.

99. **The Gaceta.**—Razetti reviews the twenty-five years of his periodical and celebrates its "silver wedding with Father Time" by publishing serially the entire list of contents for the twenty-five years. He is perhaps the only medical editor who can assert that he has never rejected an article sent in for publication by a physician of his country. To his efforts was due the organizing of the first medical society in Venezuela.

100. **History of Medicine in Venezuela.**—Risquez relates that the founding of the *Gaceta* coincided with the First Pan-American Medical Congress, to which he was the official delegate from Venezuela, and from that year dates the organization of the profession. Before that, the country was hopelessly behind the progress realized elsewhere. Lister inaugurated the antiseptic method in 1869, but an interval of twelve years elapsed before it was applied in Venezuela. But after the founding of the *Gaceta* and of the local medical society, the country soon caught up with the progress of the medical world in general. Diphtheria antitoxin was brought into use within five months of its introduction into science, and even this delay was only from the inability of the Paris Pasteur Institute to produce enough for exportation at first. Risquez published in 1894 in the *Gaceta* a study of a certain disease which seemed to be neither malaria or typhoid and yet had features suggesting both. Two years later Achard published an identical description and coined for the disease the name paratyphoid. Bacteriology since has confirmed the correctness of the descriptions, but the incident confirms anew, Risquez remarks, "that for an idea to get diffusion throughout the world, it has to start in the brain of some Frenchman."

Medicina Ibera, Madrid

Jan. 24, 1918, 2, No. 12

101 *Digitalis and the Blood Pressure. D. T. Hernando.—p. 93.
102 Reforms Needed in Medical Education. S. Sierra y Val.—p. 99.
103 Puberty. Blanc y Fortacin.—p. 119. Conclusion.

101. **Action of Digitalis on Blood Pressure.**—Hernando's research on animals has shown that in normal animals digitalis has little if any influence on the blood pressure, but it has a marked influence in raising the pressure in the isolated heart, especially when it was working badly before.

Experiences in human beings practically confirmed these findings; as a rule the increase is insignificant and there may be even a drop in the pressure. The experiments that have been published showing a vasoconstrictor action were with doses too large to be used therapeutically. With smaller doses, digitalis has a vasodilating action. The mesenteric vessels are more sensitive than the peripheral, and digitalis seems to have a constricting action on them with a dilating action on the peripheral vessels. Epinephrin, strychnin and caffein have a similar action. This is particularly beneficial when the splanchnic vessels are gorged and the peripheral empty. The data presented confirm that the action of digitalis is almost exclusively confined to the myocardium. It increases the heart's contracting power, tonicity and excitability, but reduces the conductibility. The main field for digitalis therefore is in perpetual arrhythmia, the ventricle contracting irregularly and the auricle not realizing actual contractions. This type forms about 60 per cent. of the asystoly cases. With extrasystoles, and with sinus arrhythmia, the effect of digitalis is much less certain and it may even do harm. It is contraindicated with partial heart block, but with total block it may prove useful as it acts separately on the auricle and ventricle. In asystoly with abnormally high blood pressure, digitalis improves conditions in the heart, and thus reduces the blood pressure. Some of the action of digitalis may be explained by assuming that it increases the coagulating power of the blood, as Van der Velden seems to have established. In acute infectious diseases, when digitalis fails to relieve, some paralysis of the vessels or intense bacterial toxic action on the heart must be assumed. The pneumococcus toxin does not seem to act intensely on the heart, and the heart disturbances in pneumonia are more of mechanical than of chemical origin, which explains the efficacy of digitalis in pneumonia in comparison to other diseases.

Prensa Medica Argentina, Buenos Aires

March 30, 1918, **4**, No. 30

104 *Measurement of the Pelvis. J. B. Gonzalez.—p. 427.
105 *Traumatic Spondylosis. H. L. Plaza.—p. 431.
106 Bernhardt's Paresthetic Meralgia. J. A. Lopez.—p. 437.
107 The Campaign against Tuberculosis. G. A. Alfaro.—p. 438.
108 Normal Beef Serum in Treatment of Anthrax. J. Penna, J. B. Cuenca and R. Kraus.—p. 439. Continuation.

104. **Obstetric Pelvigraph.**—Gonzalez gives an illustrated description of his quadrant instrument, which has a weight to hold it vertical. He compares the various features of this pelvigraph with others in use, claiming that it can be applied without causing pain and is extremely simple, while the figures are exact and provide a complete outline of the sagittal plane of the pelvic cavity with correct figures for the sacral measurements, for the conjugata vera and for the slant of the pubis.

105. **Traumatic Spondylosis.**—The necropsy showed that the pains in the stomach and other nervous troubles were, as supposed, the consequence of compression of the seventh and eighth spinal roots from a trauma affecting the spine seven years before. The man committed suicide just before the contemplated operation to sever the roots involved. Necropsy confirmed its feasibility.

Revista de la Asociacion Medica Argentina, Buenos Aires

March, 1918, **28**, No. 160

109 Ileus from Gallstones or Diverticulum. B. N. Calcagno.—p. 151.
110 *Pathogenesis of Pelvic Infections. C. A. Castaño.—p. 159.
111 History of Gynecology in Argentina. C. A. Castaño.—p. 202.
112 History of Public and Social Hygiene in Argentina. E. R. Coni.—p. 219. Continuation.
113 *Disturbances of Pituitary Origin in Gynecology. J. Guardado.—p. 256.
114 Fibrosarcoma of Rectum. T. Kenny and G. Segura.—p. 261.
115 A Surgeon's Impressions of North America. R. E. Pasman.—p. 274.
116 *Buba, Espundia or Uta. J. F. Recalde.—p. 288.

110. **Pathogenesis of Pelvic Infections.**—Castaño refers particularly to phlegmons in the broad ligament, analyzing the literature on the subject of pelvic infections in general and the microbes responsible for them and their portals of entry. Besides surgical and accidental traumatisms, horseback riding, chilling during menstruation and venereal excesses have been incriminated as accessory factors. Sound organs are not absolutely but only potentially sterile, and when the vitality of the organ is reduced from any cause, the scanty bacteria in the organ are able to attack the tissues. Castaño has been able to induce in animals by this mechanism typical phlegmons in the broad ligaments. He induced in the animals a latent microbism by injecting extremely attenuated cultures of staphylococci and then, aseptically traumatizing the uterus, the latent infection in the blood was attracted to that point. An inflammatory process developed in the uterus and this in time entailed a phlegmon in the broad ligament. He argues that this same mechanism may be responsible for certain cases of genital infections after abortions and deliveries, the latent infection previously present in the organism being attracted to the uterus by the wound-like conditions left by the termination of the pregnancy. In conclusion he lists twenty-five determining causes and eighteen predisposing causes for phlegmon of the broad ligament, emphasizing that mechanical, anatomic and constitutional factors may intervene in addition to the infectious factor. In eight cases personally observed, the gonococcus was found in the pus in one case, the pneumococcus, streptococcus, or staphylococcus and colon bacillus in some others, but in three cases it proved impossible to cultivate any microbes from the pus obtained by puncture of the posterior fornix of the vagina.

113. **Pituitary Treatment in Gynecology.**—Guardado remarks that it used to be said that Nature protected tuberculous women against losses of needed blood by suppressing menstruation. But we know now that this amenorrhea is probably the result of a toxic action on the thyroid. This seems to be responsible also for the night sweats and the discrepancy between pulse and temperature. Likewise the influence of the pituitary body on ovarian function has been experimentally demonstrated. On the basis of these and other premises, Guardado urges a trial of pituitary treatment in gynecologic processes rebellious to other measures. He has found a combination of pituitary and ovarian treatment effectual in many cases of congestion in the pelvis. This organ therapy has failed in others, and in one case the scanty menses grew still scantier. In one woman with unusually developed hair system, the menses had gradually subsided to complete amenorrhea for six months. Under pituitary treatment menstruation returned to normal and has persisted normal during the year since. In another woman of 28 the amenorrhea was of over two years' standing and there were other symptoms of ovarian insufficiency. Ovarian treatment gave no relief, but under pituitary treatment menstruation returned to normal after a brief exaggerated period at first.

116. **Brazilian Buba.**—Recalde discusses prophylaxis and treatment of this form of leishmaniasis encountered in South America. It is known also as espundia or uta. He advocates excision of the sore, and has been applying this since 1913 with excellent results, especially when supplemented with tartar emetic by the vein. Prophylaxis includes refraining from picking the nose with the finger, and protecting all skin lesions with tincture of iodin. This causal leishman body does not get into the blood, and contagion occurs by direct contact of skin or mucosa. The leishman body once installed in the skin of man loses its flagella and becomes incapable of infecting other persons, although by direct contact it can start other lesions on the same person. Recalde ascribes to the loss of the flagella its inability to penetrate into the blood stream.

Revista de Medicina y Cirugia Practicas, Madrid

April 7, 1918, **119**, No. 1501

117 *Suppurating Echinococcus Cyst in Lung. J. C. Castellvi.—p. 5.

April 14, 1918, **119**, No. 1502

118 Enuresis Nocturna and Adenoids. A. M. Calderin.—p. 33.

117. **Echinococcus Cyst in Lung.**—The retrospective diagnosis was that an echinococcus cyst had "died" and had suppurated. The first symptoms were diagnosed "influenza with old sclerosis of the right apex." Nearly a year later the man of 46 returned complaining of occasional pain in

the right thorax and that for some time he had been expectorating white foamy sputum, occasionally blood streaked. The fourth, fifth and sixth interspaces were tender. There was a slight tendency to dyspnea, especially in certain attitudes, and there was slight tachycardia. These symptoms suggested irritation of the sympathetic system from some inflammatory process of undetermined nature, but the sputum and blood were free from tubercle bacilli and parasites, and puncture was negative, as also deviation of complement tests. Roentgen examination showed that the suppurating process could not be in the pleura. The symptoms grew rapidly more serious, and the man died suddenly the third month, the day before the contemplated operation.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 23, 1918, **1**, *No. 12*

119 *Latent Nystagmus. J. van der Hoeve.—p. 790.
120 *Treatment of Tetanus Neonatorum. S. B. De V. Robles.—p. 800.
121 Physical Condition of Antwerp Schoolchildren. M. C. Schuyten.—p. 808.
122 Psychogenesis as Aid in Differential Diagnosis of Melancholia and Psychasthenia. J. H. van der Hoop.—p. 813.
123 *Tetanus or Hysteria? N. A. A. van de Roemer.—p. 819.

119. **Latent Nystagmus.**—Van der Hoeve describes eight cases with apparently normal conditions except when one eye was covered. Then nystagmus was evident at once in the other eye. This latent nystagmus might have serious consequences when extraneous conditions compelled the use of one eye only. He theorizes to explain this latent nystagmus, ascribing it to the unstable balance of the center for the associated movements of the eyes. Conditions gradually right themselves, and the nystagmus disappears in time.

120. **Tetanus Neonatorum.**—Only one of the three infants died in Robles' three cases; the others recovered although the symptoms had been very severe. The main reliance in treatment of tetanus in the newly born is on narcotics, chloral, ether, chloroform and morphin. He gave them freely, as the tolerance in tetanus is exceptionally high, and they seem to have a direct action on the tetanus toxin besides their sedative influence. He found the use of an incubator in a dark room a great advantage as it protected the infant against light and noise—every irritation of the kind bringing on new paroxysms. The infants were 9, 13 or 15 days old, and he injected 120 units of antitetanus serum several times. The incubation seemed to have been eight, ten and eleven days. Baginsky and Heubner are said to have never had an infant with tetanus neonatorum recover, Escherich had one recovery in fourteen cases and Shukowski had 2 per cent. recover.

123. **Tetanus or Hysteria?**—Roemer reports a case which warns that the possibility of hysteria should not be forgotten even when paroxysms suggesting tetanus develop in a person presenting an infected wound.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 4

124 *The Mosquitoes of the Dutch East Indies in connection with Malaria. W. Schuffner and others.—p. 1, p. 25 and p. 42.
125 *Prospects of Prophylaxis of Malaria. W. Schuffner.—p. 48.

124-125. **Mosquitoes of East Indies and Prophylaxis of Malaria.**—This profusely illustrated report of research on the various mosquitoes of the Dutch East Indies is printed in parallel columns in Dutch and German. Schuffner says that cutting down trees and bushes to destroy the lurking places for mosquitoes has proved of little use. In the Andamans the result was disastrous, as the treeless areas, although successful in getting rid of one type of mosquitoes, attracted another type, the ludlowi, which is much more dangerous from the malaria standpoint. It seems to be absolutely impossible to eradicate all breeding places for the mosquito except when natural conditions favor drainage. This is not the case in the fisher villages along the coast, which need it most. Only the well-to-do can have properly screened houses. Quinin prophylaxis is also impossible to realize in a scattered population where it has to be kept up indefinitely, without the discipline of a military or industrial environment. Adults soon weary of it, and it is possible only in the rarest cases to give the children effectual quinin courses. Tropical hygiene is practically powerless against malaria as a folk disease. It is far easier to clear a place of beriberi, ankylostomiasis or cholera than it is to eradicate malaria in the general population. On all sides, he says, are heard the confessions of failure. Even Manteufel after twelve years' work at Dar-es-salam wrote in 1914 that "quinin prophylaxis of malaria is growing every year more and more unpopular among the blacks." With a population of 23,000 nearly $5,000 had been spent annually for the purpose. Schuffner adds that the problem would be solved if we could discover some means or remedy which would destroy the gametes as promptly and certainly as quinin destroys the schizonts. Then the people could be compelled by law to submit to a thorough course of treatment.

Hospitalstidende, Copenhagen

April 24, 1918, **61**, No. 17

126 *Light Treatment of Bone Tuberculosis. A. Berntsen.—p. 513.
127 Hallucinations. Wimmer.—p. 525. Commenced in No. 16, p. 496.

126. **Arc Light Treatment of Bone and Joint Tuberculosis.**—Berntsen has been investigating on twenty-seven patients the modifications in the blood during a course of carbon arc light treatment of so-called surgical tuberculosis. No noticeable changes were apparent in the blood picture, merely the fluctuations within the natural range.

Ugeskrift for Læger, Copenhagen

May 9, 1918, **80**, *No. 19*

128 *Occult Hemorrhage. J. P. Gregersen.—p. 733. Commenced in No. 18, p. 691.
129 Purulent Sputum Does Not Appreciably Modify Test for Occult Blood in Stools. J. P. Gregersen.—p. 740.

128. ***Occult Hemorrhage.***—Grégersen has simplified the test for occult bleeding in the stools. All that is necessary for it is a scrap of stool, so small that it can be carried between two slides, and the reagent, made up in powder form. It merely requires dissolving when ready to use, and is dropped directly on the fecal substance. The work issues from the medical service of the public hospital at Copenhagen, and states, to begin with, that the feces of normal persons, even on a meat-free diet, contain a certain proportion of blood (according to his data, from about 0.03 to 0.005 per cent.). Hence the phenolphthalein and thymolphthalein tests are not suitable as they give positive findings with extremely minute admixtures of blood. The sensitiveness of the benzidin test can be controlled by the strength of the solution. He uses a powder consisting of 2.5 cg. benzidin and 20 cg. barium peroxid. These powders keep well in waxed papers. When ready to use, one of the powders is poured into a measuring glass, and on top of this is poured 5 c.c. of a .50 per cent. solution of acetic acid. We thus obtain a 0.5 per cent. solution of benzidin in which the necessary proportion of hydrogen peroxid is generated as the barium peroxid is dissolved by the acetic acid solution. The latter solution also keeps well. The scrap of feces, about the size of a hemp seed, taken from the center of the lump, is spread in a thin layer on a slide, and from 2 to 4 drops of this reagent are dropped on it. If the specimen turns a greenish blue, a pale blue, in the course of from fifteen to sixty seconds, the specimen contains blood in a proportion of about 0.2 to 1 per cent. If the tint is a livelier blue and the change in tint occurs in from three to fifteen seconds, the blood content of the specimen is about 1 to 5 per cent. With a still more rapid change of tint and a darker blue, the blood content is over 5 per cent. Two or 3 drops of the reagent are required for 1 drop of urine. He has found persistent occult bleeding one of the very earliest symptoms of cancer. With gastric ulcer, the bleeding comes and goes, but never keeps up long. Negative findings for a few days disprove the assumption of cancer. Gregersen has found it convenient to prepare some filter paper by dipping it in a very dilute solution of acetic acid with minute blood admixture. The dried paper does not show the presence of blood, but if a drop of the benzidin reagent is dropped on it, the characteristic greenish blue tint appears at once. This is a convenient test to show that the reagent is properly made.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 71, No. 3 CHICAGO, ILLINOIS July 20, 1918

SOME FURTHER CONSIDERATIONS CONCERNING THE TREATMENT OF NEUROSYPHILIS *

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While dogmatism has no place in medicine, it is especially unfortunate in the weighing of evidence and the evaluation of data in the tentative endeavor now being made to determine the most efficient form of therapy for the treatment of neurosyphilis. Cotton manifests the true scientific spirit when he says that with a spirit of open-mindedness every method should be given a thorough trial, and that it is only by continual experimenting with new ideas that we can hope for progress in this new line of endeavor. If an apology were necessary because of my selection of this much discussed subject, it were best made in the words of Southard: "That no more important human problem now exists than syphilis, and that neurosyphilis is a highly important fraction of the total problem."

The three principal methods of procedure in the treatment of nervous syphilis are intraspinal, intracranial (subdural or intraventricular) and intensive. Are all of these methods of equal value, or is any one of them what we might call outstanding? Certainly the ultimate procedure, the ideal method, is yet to be evolved. Intraspinal medication has never had a fascination for me, neither have I been a victim of this belief. I have simply been impressed with the results I have observed which were in such striking contrast to those formerly obtained from the routine forms of procedure. While I have been interested in the physiologic discussion concerning the value or usefulness of intraspinal medication, yet the observation of the fact that patients in whom intravenous medication had utterly failed made apparently good clinical recoveries under the administration of the former, outweighed in my mind all theoretical or academic discussion. In over 800 intraspinal injections, we (Riggs and Hammes) have never seen one untoward result. In the light of this experience, the statement of Halliburton that "the use of salvarsan [arsphenamin] in locomotor ataxia and similar late syphilitic affections via the cerebrospinal fluid has been abandoned, as it is fatal not only to the syphilitic organisms but also to the patient," has been shown to be absolutely baseless as to fact, neither do I agree with Sachs "that there is nothing which the intraspinal method achieves that cannot be accomplished by the intravenous." Fordyce tells us that he has seen generalized exfoliative dermatitis, persistent forms of gastro-enteritis, nephritis and obstinate jaundice follow intensive medication. Neither in regard to safety, then, nor in results obtained, is it to be preferred in properly selected cases to the intraspinal method. No one believes that it should be used to the exclusion of the intravenous method.

Under normal conditions, the choroid plexus is believed to be impermeable to the passage of all but a few drugs, but this does not always obtain, because in certain cases remedies introduced intravenously do reach the cerebral and spinal tissues. Barbat says that by the reduction of intraspinal pressure the permeability of the meninges to arsenic can be greatly increased and that arsenic can be made to pass into the spinal fluid in more than 96 per cent. of the cases suffering from tabes and paresis; he also believes that the antibodies in the blood serum which in this way gain access to the spinal fluid play a more important part than the small proportion of arsenic contained therein. Should this contention prove well founded, the potentialities of intensive intravenous medication are very greatly increased. Dr. Sachs' assertion that serious forms of paresis and tabes have not been favorably affected by intraspinal injections, and that nothing has been accomplished by them that could not be obtained by the intravenous method is absolutely at variance with my experience during the past four years. Personally, I have known of no advocates of the Swift-Ellis procedure to claim that paresis could be cured, although Southard states that by means of systematic intensive treatment, even "paretic neurosyphilis seems to have been cured." "Theoretically," says the same author, "we should approach all cases of neurosyphilis without bias or nihilistic prejudgments." In the past, we have repeatedly stated that the results of intraspinal treatments in tabes have been notable, that in over 70 per cent. of our cases (Riggs and Hammes) both blood and spinal fluid have become negative and that tabetic pain, gastric crises, bladder symptoms and the ataxic gait have been relieved as the result of this treatment. As to paresis, we have insisted that this form of therapy greatly increased the number of remissions and modified favorably the course of the disease, enabling many patients to pass their last days in the home environment.

Treatment of paresis by intraspinal injections has been the method adopted at Bloomingdale since 1912; thirty-five cases have been treated by Dr. Amsden since that time. Two were given intraventricular injections. Of eighteen cases in which no remission occurred, in six there were prolonged periods of arrest of the progress of the disease, fourteen patients died with an average duration of the recognized course of

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* Chairman's address, read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the disease, two years and four months. Remissions of six months to two and a half years or more have occurred in 40 per cent. of the cases; long periods of arrest in 17 per cent. "These results," says Amsden, "justify persistence in the use of a form of treatment which has thus far been the only ray of hope for the sufferers from an invariably fatal disease. Cotton states that with the original method of Swift and Ellis, 33 per cent. of the patients were distinctly benefited and enjoyed remissions of from two to four years, and that a small number are still normal. He also thinks that this form of treatment is the most efficient one for tabes and syphilitic meningitis. These statements of Amsden and Cotton are in striking contrast with that of Finlayson, who says that the Swift-Ellis method was tried at the State Hospital at Warren, Pa., for two years and that the indifferent results did not justify its continuation. Fordyce believes that it is to be preferred in tabes, meningitis, meningomyelitis, meningo-encephalitis and in optic atrophy with positive fluid. That optic neuritis in the absence of all findings both clinical and serologic may sometimes be benefited by treatment is shown by the report of the following case recently seen with Dr. Hammes: A man 40 years of age; paper-hanger; contracted gonorrhea twelve years ago; at that time there were some sores on the penis which were regarded as nonspecific. For five months he had suffered from failing vision. This was so marked that he had to be led around. There were no symptoms of syphilis—clinical or biologic. Treatment gave prompt relief. He is again at work and can match paper without difficulty. Reasoner, Fordyce and myself have reported cases of syphilitic meningitis and meningomyelitis occurring respectively four and six months after the initial lesion which resulted in death. Fordyce thinks that intraspinal treatment given at this time acts more rapidly than in older infections and offers the only chance of cure and prophylaxis against later degeneration. Cases of nervous syphilis occurring in the florid stage of syphilis in spite of intensive medication, according to this writer, either die from intense meningitis or become candidates for paresis, tabes or cerebrospinal syphilis. All such should be treated intraspinally. Cases of abortive tabes, where the fluid shows no pathologic change, we have seen greatly benefited by intraspinal medication, notwithstanding the generally accepted belief that it is contraindicated in these patients.

All neurologists are familiar with the notable work done by Cotton in neurosyphilis; it is earnestly to be hoped that many other state hospitals will be stimulated by it to a spirit of research and healthful medical activity. Red tape, archaic routine and the dominance of the idea that custodial care, not treatment, is the true function of a state hospital, paralyzes all progress and creates the deadly atmosphere of an almshouse rather than that of a psychopathic hospital. Wardner, Hammond and Sharpe, Cotton and others, have called attention to the intracranial method *in the treatment* of paresis. Both Hammond and Cotton regard it as the most efficient procedure in paresis. The former believes that injection into the ventricle is much to be preferred to the subdural method, especially if there be thickening of the pia. The latter uses both the subdural and the intraventricular, beginning with the former for three or four doses, then giving at least five injections into the ventricle. In fifty-one cases treated last year by Cotton and Stevenson, some too far advanced for therapy to be of avail, remissions were obtained in twenty cases. All of these were able to leave the hospital and only two have returned. Intracranial methods allow of larger doses of arsphenamin and more frequent administration; usually a small dose is given (0.3 gm.) intravenously and the serum reinforced with 1 mg. of arsphenamin. The various serums, the Ogilvie, the mercurial after Byrnes, the Swift-Ellis, arsphenamin in physiologic sodium chlorid solution, have been tried; while cases have received benefit from all, the Swift-Ellis has proved the most efficient (Cotton and Stevenson). In early paresis, the preparetic stage, where the process is limited to the meninges and the spirochetes have not invaded the cortex, the Swift and Ellis method will prove efficient. In confirmed forms of the disease, the effect of this treatment is not lasting and patients suffer relapse; it is not sufficiently intensive.

The most popular form of therapy in neurosyphilis is that of intensive medication with draining of the spinal fluid. The beneficial results obtained by repeated injections of arsphenamin and mercury have been explained on the supposition that the impermeability of the choroid plexus to drugs has been overcome by mass attacks Teutonized, as it were, by brute force, so that it was no longer able to resist the passage of spirocheticidal drugs to the spinal fluid. By intensive treatment is meant injections of arsphenamin twice a week (from 0.3 to 0.6 gm.) along with continued injections of mercury. Solomon says that in the Massachusetts series, intravenous injections are given at least twice a week and that from forty to fifty, even to a hundred injections, are sometimes given in a period of a few months in conjunction with mercury and iodids. The dictum of Southard that "no one can now successfully make a differential diagnosis between the paretic and the diffuse nonparetic forms of neurosyphilis in many phases of either disease, even with all laboratory refinements," makes it imperative to treat all cases in which differentiation is impossible. But this does not reach the crux of the matter. Grave symptoms found in paresis or tabes are by no means necessarily indicative of serious anatomic change. This is true as regards loss of memory, disorientation and apparent mental disintegration in the former or the characteristic clearly defined symptoms of the latter; irritation and functional perversion of neurons, not their destruction, being the probable cause. Meningeal inflammation plays an important rôle in the evolution of symptoms not only in cerebrospinal syphilis but in paresis and tabes as well. The clinical syndrome, therefore, be it ever so grave, does not of necessity mean a deteriorated brain or a degenerated cord. The only way, therefore, of doing justice to all because of this camouflaging of the incurable by that which can be cured or at least definitely ameliorated is to treat all.

The New York Psychiatric Society recently appointed a committee, of which Dr. Dana is chairman, to investigate the problem of the early recognition, treatment and prevention of paresis. The importance of this subject will be better appreciated if one considers the whole range of syphilitic mental disease, namely the psychoses resulting not only from paresis but from cerebral syphilis and tabes as well. The average number of patients treated for syphilitic mental disease in the state hospitals of New York during the fiscal year ending June 30, 1917, was 1,554, and it has been estimated that the economic loss to the state was $5,398,644.99 (Pollock). Because of this menace to the social order, it has been proposed to establish a hospital near New York City for the detention and treatment of syphilitics. Since Wile and Stokes maintain that probably every case of florid syphilis shows changes in the spinal fluid and that clinical symptoms of neurosyphilis of this period can probably be determined, and since also the same claim holds equally true with reference to the primary period, and as it is not improbable that these patients are potential candidates for syphilitic mental disease, it is believed by many that early intensive treatment may prevent involvement of the nervous system. The future of the syphilitic and the possibility of anticipating or arresting degenerative change, Fordyce thinks, depends largely on early and regular examination of the spinal fluid. My experience is not in accord with the assertion of Sachs "that there is absolutely no correspondence between a change in the cerebral content and the condition of the patient." Usually clinical improvement and biologic reduction sustain a direct relation the one to the other. Neurologists are familiar with certain cases in which this does not occur. Ayer points out "that frequently one may be able to reduce the cells and proteids to normal, and yet the Wassermann reaction persists and the patient shows no advancing symptoms." Fordyce calls attention to the relation existing between the clinical symptoms and spinal fluid findings in early syphilis associated with an acute meningitis, namely to the improvement corresponding with the biologic reductions; to the temporary remissions occurring in paresis and taboparesis, in which the spinal fluid shows no change aside from that observed in the cell count and the globulin; to the improvement that may occur in the spinal fluid while progressive mental deterioration goes steadily on. Aside from the two exceptional conditions noted he believes "that there is an intimate relationship between the clinical symptoms and the fluid findings."

Gains states that "In the [illegible]tive cases, there is corresponding clinical improvement, although frequently clinical improvement or apparent cure may take place even in the presence of a positive Wassermann." The most vigorous arsphenamin therapy may, according to Southard, fail to render the spinal fluid negative, yet the clinical condition may improve so greatly that the patient may be regarded as clinically recovered. For the past two years I have had under observation two cases of cerebrospinal syphilis, in both of which the blood became negative and the cell count and globulin normal, but in spite of the most persistent treatment the spinal fluid gave a positive Wassermann reaction. While one patient made a clinical recovery, the other has constantly suffered from subjective symptoms indicative of nervous syphilis. Unfortunately, as to the real significance of the spinal tests, their relation the one to the other, their prognostic importance and their response to treatment, but little is known. Without doubt, they are indicative of a pathologic condition in the nervous system. "They do not all represent," according to Southard, "the same inflammatory products and chemical conditions. They are prone to occur independently and they disappear under treatment at different rates." "The gold precipitating substance," says Weston, "is not the Wassermann producing substance," neither are the globulins and albumins believed to be the same. The colloidal gold test may become negative while all the other tests remain positive. Then again these may be practically negative, while it continues positive (Solomon). Solomon and Koefod tell us that the cell count is of no prognostic importance in syphilis of the nervous system unless there is an improvement in the other spinal tests, neither is it of aid in a diagnosis between paresis and cerebrospinal syphilis, nor does it give information as to the duration of the activity of the process or its severity.

Out of all this chaos, one fact seems to be patent: The rendering of these tests negative under treatment indicates a disappearance of the inflammatory reactions from which they arise and an arrest of the disease. As to the permanence of this improvement, with our present knowledge, it would be unwise to predict. Neither can one develop a spirit of optimism with reference to those patients in whom the biologic reactions are only partially or not at all influenced by treatment. It is well to recall the remarkable case of paresis reported by Tuczek; in this paretic, there was a complete remission for twenty years. What nature has once done, she may do again. While this is an exceptional instance and can afford but meager comfort, yet it must be kept in mind when considering these cases of clinical recoveries in which there is no correlation between laboratory findings and clinical betterment. I cannot help but feel that in all these cases of clinical improvement without serologic changes, a recurrence of symptoms with a progression of the disease ever impends and is ultimately inevitable. "Any method," says Lautman, "which produces a negative serology in addition to improvement of the clinical symptoms may be deemed efficient."

All of the three preceding methods (the intraspinal, intracranial and the intensive), in the light of our present experience, may, therefore, be called efficient. This is particularly true as regards cerebrospinal syphilis and tabes dorsalis, and even in paresis, the most hopeless of all the manifestations of syphilis. The accomplishment of these two purposes has in a measure met with success—certainly not with a lamentable failure. It is a well known fact that the percentage of remissions is much greater in treated than in untreated paresis. In 127 patients observed by Cotton, remissions occurred in about 4 per cent. of the cases. In a summary of 300 untreated cases of paresis, but five, says Solomon, left the hospital able to work, while in the treated cases, about 25 per cent. were able to leave self-supporting. The Massachusetts workers, according to him, do not claim cures, but they do claim "improvements." Paresis, he believes, is amenable to treatment to the extent of the restoration of the ability to work for a period, and this he says "is something of an achievement." According to Dr. Pearce Bailey, "treatment has a decided effect not only on the symptoms of paresis, but also on the working capacity of the individual." Dr. Fordyce thinks that little can be expected from the intraspinal or any other form of treatment in paretics, when the stage of institutional care has been reached. "The most that can be hoped for is temporary arrest of the encephalitis." It is in the cases of meningo-encephalitis—the preparetic type—in which this method is efficient. Hammond and Sharpe regard intraventricular injections as superior to both the intradural and intraspinal methods in the treatment of paresis, and they believe that in skilled hands it is practically free from danger. Solomon states that the Massachusetts workers have obtained improvement by every method used. Cotton, who has had an unusually extensive experience during the last four years, regards the intracranial method (both subdural and intraventricular) as the most efficacious in the treatment of this disease. Since he has had no serious results following its use, he thinks it should be continued.

The present attitude of those most experienced in the treatment of nervous syphilis is best expressed by Southard: "While it has always been conceded that treatment would greatly help cases of diffuse and vascular neurosyphilis, the utmost pessimism has existed concerning the results to be obtained by treatment in cases of tabetic and paretic neurosyphilis, . . . and though it has been by no means settled in the minds of the various workers in this field as to what the ultimate results of such treatment will be, . . . still the majority of men who are treating these cases systematically feel very much encouraged."

THE PERSONAL EQUATION IN PSYCHIATRY *

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In one sense of the term personality may be said to be everything in insanity. This is not to say that insane patients never fit well into types; it simply means that the study of personal character, of responsive reactions to environmental stimuli, of conduct and expression, are and always will be of paramount importance in investigations seeking to establish the psychologic status of the individual. It means, furthermore, that the hardest things to extinguish in an individual are the things that mark him off from other individuals. It may be said that this is a matter of inference only, but it seems to be in accordance with the facts. There is nothing strange about this, since memory plays as large a part in experience as experience does in personality. Conscious memories form the principal line of demarcation between individuals, and with extinction or great reduction of conscious memory we have concomitant narrowing of the field of consciousness. To just what extent unconscious memory comes into play to enliven the stream of consciousness is very difficult to say. A greatly confused and apparently amnesic patient with hallucinations of hearing has some basis for the recognition of the voices which he hears. We say that he imagines the voices and this is true enough, but how can he imagine that which he is not aware that he has ever heard? As a matter of fact, memory, either conscious or unconscious, supplies the necessary factors of recognition and convinces him that the sense perception, albeit false and objectively unreal, is the sound of a human voice. To be sure, the patient may maintain that it is the voice of Deity or of the King of Siam, whom he has never seen, but this proves nothing except that he is familiar with the human voice or else that he attributes to Deity or the Siamese King a mode of expression somewhat different and resembling, for example, the notes of a pipe-organ or of a nightingale. For obvious reasons, the congenitally deaf do not hear voices. Whether they have or imagine that they have sense perceptions which stand to them for a hypothetic human voice is another question.

Can personality be of etiologic significance in the determination of insanity? It can be, if by personality we mean that individual set or bias which creates a presumption in favor of either normality or abnormality in reaction to difficult circumstances, or in other words a fortunate or an unfortunate outcome of an adverse situation. The working out of the problem is a matter of personality, but what, forsooth, is personality? Modesty forbids an attempt at the colossal task of adequately defining this concept, but let us say that it has to do with aptitudes both inherited and acquired (provided there is such a thing as an acquired aptitude), with knowledge and its expression, or so to speak with knowing what to do and how to do it. These things enter into personality, which is made up largely of habitual modes of thinking, feeling and acting, of habitual ways of looking at things and doing things. What is it about the person that causes him to become insane? Not to overstate the case at all, if we could answer that question we would be flooding the field of psychiatry with such a light as shines now only on the exact sciences. As fast as we are able to introduce factors of precision, we will discard the speculative and the inferential, but with such a wealth of speculative material at hand we are sometimes in danger of forgetting that surmise and conjecture cannot fill the place of well grounded categorical affirmations. The field of fancy is filled with devious paths which do not always lead to the straight and narrow exit.

We cannot but be impressed by the tyranny of personality when we compare the introcentric and subjective precocious dement with the exocentric and objective maniac, but after all we cannot tell which component in the etiology has the greater effect in determining the psychosis, whether the personal make-up or the hypothetic disturbing factor, though very likely the former rules. In other words, given a set of similar adverse factors in two persons, each will respond with the psychosis for which the stage was set in the beginning. Now perhaps this is true and perhaps it is not, but at any rate it is a fascinating conjecture which leads us dangerously near to determinism. If certain people are to become insane and are to become insane only in a certain way, what is the use of all our therapeutic endeavor? A liberal psychiatry can hardly rest under the restraint of such freezing philosophic dogma.

It is sometimes very plausibly said, even by the laity, that there is nothing strange about a given person becoming insane, because he always seemed like that kind of a person, the insanity being in character or keeping, so to speak, and simply an exaggeration of existing traits or tendencies. Lay observation is sometimes acute, though without reasonable criteria as to causation. It often partakes of the mysterious and of the trivial. While it is impossible to deny that grief, worry, sunstroke or change of life may have something to do with insanity, it is highly improbable that they will cause it in the absence of the necessary determining factors. Why do some men with disease of the heart or the lungs or the liver become insane while some other men with disease even of the brain do not become insane? It is indeed astonishing what gross insult the brain will sometimes tolerate without resulting mental disintegration, and this brings us to the very interesting question as to whether the essential adjustment to adverse factors is made by the brain or by the mind or by both together.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The assumption of dualism in operation leads us to look for psychophysical parallelism, often a barren search, it must be confessed, but with points of reasonable expectation. The idea of effect without cause is abhorrent and a rational dualism seems to extricate us from the dilemma with which we are confronted, if we assume that physical injury or disease can cause only physical disorder and that insanity, therefore, is purely psychogenic in origin. It spares us the necessity of supporting the difficult thesis of materialism on the one hand or of idealism on the other, and allows us to bridge in some sort, at least, the gap between matter and spirit. This naturally calls for some sort of reactive mechanism between the two which we will not attempt to define, but which we hope some day to see elucidated. Any physical cause to be effective in the production of insanity must in some way affect the flow of ideas and we do not know how physical states can influence the flow of ideas, though they doubtless can do so very profoundly. We prefer to think of man as something more than a mere congeries of biologic adaptations, and yet we must not lose sight of the fact that perhaps the greatest achievement of modern psychiatry is to be found in the biologic point of view. I refer, of course, to the point of view that regards the human organism as a whole, both ontogenetically and phylogenetically, and takes account of all discoverable factors. To the extent that the psychiatrist keeps in mind all the elements of his problem, he will probably succeed in justly estimating both the cause and the character of the reaction. Fallibility of judgment is inherent in the human mind, which is no very dependable instrument at best and, therefore, to be used with due reference to a fairly large percentage of probable error.

ABSTRACT OF DISCUSSION

Dr. William O. Krohn, Chicago: The suggestion that if we could know the personality we would know something of the causes of the insanity, is very good. We do know that certain types of personality predicate what the insanity will be if the person becomes insane. In taking the reaction tests as to the speed at which the nervous impulses are transmitted from the brain, we know that if one individual becomes insane he will have a certain type of insanity, while another will have, say, the slowed up type of insanity. I found that carried out in the study of children in the public schools, where we find two distinct types: the explosive motor type and the sensory type. One child is bubbling up to express himself; he is always ready to say something whether he knows what he is going to say or not. Then, there are the others of the sensory type who hear everything, but are rather slow to express themselves. We know that the motor type of boy, if the proper environment for his development is not available, will develop a certain distinct type of insanity, while the other type, who holds himself in, receiving impressions and never able to express himself, will manifest another abnormal, distinct type of personality. Through the environmental and personal education we can at least determine to a large degree what type of personality the individual possesses, and in large measure overcome the handicaps with which the organism is invested when the individual is born.

Dr. Joseph Byrne, New York: The great objection I have to discussions on psychiatry and on questions pertaining to psychanalysis and psychology in general, is that the audience do not seem to grasp them. That is a great loss to the psychologic study of medicine because we come here to learn. The doctor has raised pertinent questions in regard to personality. In the study of any question connected with neuropsychiatry, I want to know first what the personality is. There is an objective and a subjective personality, but what do we mean by the personality and the modifications of personality? The second question is the dual hypothesis, which I was rather glad to hear the essayist mention. We are taken up altogether too much with mechanistic conceptions in modern medicine. Dr. Haldane, one of the foremost physiologists of any age, gave mechanistic views a severe blow. He ridiculed the mechanistic conception as having too much weight in our physiologic and biologic laboratories. If there is any one conception that brands a man as being philosophical in his tendencies, it is the capacity to consider things as a whole and also as parts. As to bridging the gap between matter and mind, I do not think the doctor would succeed in that. Men in the past have tried to fathom that question and have absolutely given up all attempts at trying to bridge the chasm.

Dr. Ralph Reed, Cincinnati: One point brought out in the paper has always been interesting to me, and that is with regard to the relationship between the physical origin and the psychogenic origin of mental diseases. In psychiatry there seem to be two schools with distinct demarcation between them, one of which, when considering any mental disease the etiology of which is in doubt, shows an inclination to insist that the origin must be physical, the other showing a tendency to seek for some psychogenic origin. Two or three striking facts bear on both phases of this question. One is the tremendous destruction of tissue seen in many cases of organic brain disease, with very little mental change. Sometimes this is so striking that it is absolutely astonishing. On the other hand, we see cases in which a very slight amount of toxin introduced into the system is productive of profound changes in the individual's character.

Dr. Albert E. Sterne, Indianapolis: One of the most dangerous things teachers and psychiatrists do is to promulgate a doctrine which the laity will gladly take up, even more than it already has, to wit: That a mental complex can stand on its own feet. If we are to be practical teachers of medicine and practical men in our consulting rooms and at the bedside, we must stand squarely on the basis that presupposes and establishes a fundamental organic condition for mental expression. It is obvious that there are psychogenic causes at times, such as emotions, particularly the emotion of fear, which produces changes in our mental attitude and expression. Nevertheless, we must hold fast to the fact that there are changes in the brain of a cellular character which are the fundamental causes of what are commonly termed mental diseases. I believe strongly in the materialistic side. While recognizing the value of psychogenic factors in the production of this materialistic phase, it is a mistake to think that the so-called physiologic changes which are shown by individuals are independent of organic changes in the cells. I do not believe that that hypothesis can be maintained. If we have gotten anywhere in the teaching and practice of psychiatry it has been by holding firmly to the fact that there is an organic basis for these diseases.

Dr. Harold N. Moyer, Chicago: An old philosopher once said that when the understanding failed we used a word. I have enjoyed the discussion that occurred here because of the facility with which some of my colleagues can use words. I have not that faculty. As to the psychogenic and the somatic origin of mental disease: Mental disease is not tangible. It is not a thing purely. It is a human concept in the mentality of the psychiatrist. The facts are perfectly clear that some mental disorders are due to somatic and some to physical causes. Another equally obvious fact is that some are psychogenic in origin. We ought to announce that positively and stand resolutely on that proposition. Then again, there is a third group of disorders that are mixed—they are in part psychogenic and in part somatic and physical in origin. It is the business of the practical psychiatrist, the man treating mental disorders, to unravel the tangle in the case, and if he cannot have a mental grasp of the physical and mental side of his patient, he is not fit to treat him. In the practical treatment of psychiatric disorders this problem is presented in every individual case, and the success with which you solve it is the success with which you meet the indications in that particular case.

Dr. Beverly R. Tucker, Richmond, Va.: I am of the opinion that we have not laid enough stress on the hereditary factor in mental diseases. The doctor spoke of inherited aptitudes. I had occasion at one time to investigate the manufacture of artificial eyes, and it was found that it could not be very successfully carried out in this country without the importation of Bohemians trained for generation after generation in this particular work. I believe that it is an inherited aptitude, and that the simpler aptitudes involving the motor factors are the easiest to carry, and then we come to the ones below. I do not believe that people "go" insane. I believe that when physical disease is induced, for instance by toxemia, as by alcohol, this releases inhibition and then we see the individual stripped of all his veneer, and the man who becomes maniacal under alcohol has a maniacal tendency. We do not lay enough stress on the inheritance factor. I am of the belief that neither poison nor anything else can make a person insane unless he has an inherited tendency. In other words, a normal mental mechanism remains a normal mental mechanism, and the only influence that disease has on it is to cloud it. Any well-formed syndrome that is manifest has always been present. A person does not "become" insane; he has always been insane, and some particular determining factor makes that apparent.

Dr. Lawrence B. Pilsbury, Lincoln, Neb.: I purposely avoided going into personality very much; personality is too big a problem. We do not know what personality is, we simply know some of its manifestations. As to somatic and psychogenic causes, they are very hard to separate. It is as hard to separate the potentially somatic cause from the potentially psychogenic cause as it is to bridge the gap between the body and the mind. Dr. Sterne speaks of fear. We do not know what fear is, but we know some of the manifestations of fear. Probably some of the ductless glands have something to do with fear. Dr. William James, in elaborating his theory, points out the fact that we are, so to speak, afraid because we run; that we do not run away from an object, a bear for example, because we are afraid. We first begin to run—we first react—and then afterward we realize that we are afraid. Of course, there is simply an idea or an emotion with a physical expression or manifestation, but we cannot have physical reaction without a cause, and the cause in this instance is a stimulus, probably an optical stimulus—we see a bear and begin to run, and we are afraid. The whole thing has a material and physiologic basis, and how to separate the emotion of fear from its manifestations I do not know.

Dangerous and Harmless Color Blindness.—In a recent investigation made by the United States Public Health Service, an important distinction was made between persons who are only slightly color blind and those who are dangerously color blind, that is, unable to distinguish at all times between red and green. The results of the investigation form a working basis on which examiners may discover members of the latter class and exclude them from all government positions in which the reading of colored signals is a part of the work. It was found by various tests that the latter class includes persons who are able to see three or fewer colors in the spectrum, those who see more than three colors but have the red end of the spectrum so shortened as to prevent the recognition of a red light at a distance of 2 miles, and those with a central scotoma for green and red. In making the tests, the health service officials used the Edridge-Green color lantern in preference to colored yarns. In the course of the tests, 1,000 persons were examined by means of the lantern, in order to determine both its value and the effect of refractive conditions and lesions of the eye on color perception. The examinations also revealed the fact that color blindness occurs in about 8.[illegible] per cent. of men and 2.2 per cent. of women, if we exclude those who are able to distinguish five colors in the spectrum. Among workers in occupations requiring the ability to recognize colored signal lights, dangerous color blindness prevails to the extent of 3.1 per cent. among men and 0.7 per cent. among women. It appears the most frequently in eyes affected with mixed astigmatism, and the least frequently in those that show no refractive error.

SOME VITAL PHASES OF FRACTURES OF THE JAWS *

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The subject of fractures of the jaws is one that has attracted the attention of medicine since the days of Hippocrates. It also is a subject that was of considerable interest to dentistry long before it became a profession. Indeed, many of the principles laid down by Hippocrates can be used today with a moderate degree of success. It was Hippocrates who first originated interdental ligation. It was also Hippocrates who condemned the use of bandages alone as a procedure in the treatment of fractures of the jaws.

In presenting the subject of fractures of the jaws at this time, we shall touch on only two or three vital phases of the subject. The first phase which we shall attempt to discuss will be the process of repair. We use the word "discuss" advisedly, because in our present state of knowledge of the subject, we can only discuss it. We are not in a position to make any dogmatic statements as to just what takes place in the process of repair of bone.

Just what takes place in the behavior of the tissues in the process of repair of bone is a question offering a diversity of opinion. There seems to be an antagonistic state of opinion about the theory of bone growth. There are two schools that are contending for the maintenance of their theories along this line: One contends that the periosteum is a limiting membrane without the property of osteogenesis; the other maintains that the periosteum is an osteogenetic membrane and can go on functionating, developing and nourishing new bone.

Havers, in 1692, gave the first accurate account of osseous structure and described the periosteum as simply a connective tissue, limiting and vascularizing membrane.

Antoine de Heyde, in 1684, made some observations on frogs and determined that callus was formed by calcification of a blood clot extravasated around broken bone ends.

In the middle of the eighteenth century, Duhamel brought out the generally accepted theory of the function of the periosteum. His view was that the periosteum became thickened and succulent around a fracture and by pushing the new tissue in among the fragments it formed a callus. In his experiments, he discovered a layer of cells lying next to the bone. To this layer, he gave the name cambium layer. This layer of cells between the true periosteum and the bone is recognized in the bone work now being done in Europe.

Macewen[1] is emphatic in the statements that the function of the periosteum is simply a limiting membrane and does not have the property of osteogenesis. He made many experiments on dogs. In these he seems to prove that the periosteum does not produce new bone. In many instances, he reports that the whole radius was removed, leaving the periosteum. He finds in these cases that after several weeks no new bone is formed. In his experiments, he finds no place where the periosteal flaps produced new bone. He also finds that where the periosteum was not intact, there was a marked hypertrophy of the bone, showing that periosteum limits bone growth.

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* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Macewen, Sir William: The Growth of Bone, New York, The Macmillan Company, 1912.

These experiments of Macewen are substantiated by similar experiments by Cohn and Mann. Their experiments included transplanting of bone denuded of periosteum into muscle, into the medullary canal and into newly made bone defects. Some of these transplants were covered with periosteum and others were not. It was found that isolated bone grafts did not act as foreign bodies and were not absorbed after sixty days, but showed a tendency to outgrowth. They also made experiments in which the periosteum per se was transplanted around the carotid artery. This did not show bone proliferation. They came to the conclusion that the periosteum was not at all essential to the healing of a fracture.

Other investigators in this country have made similar experiments with similar results. These investigations, with others, represent the work of the contenders of the theory that the periosteum is simply a limiting membrane. The other class of investigators in bone work contend that these experiments must have been carried out with simply the outer layer of the periosteum, which is a limiting membrane, and that the inner layer, or the cambium layer, the layer which Hey Groves terms the epiostial layer, or the osteogenetic layer of the periosteum, was not considered.

Our experiments at the University of Michigan hospitals do not accord with the theory of Macewen. We have found that periosteum transplanted into the muscle tissue will produce new bone. This new growth seems to have all the properties of true bone: its blood supply, its bone cells and the process of true osteogenesis seem to be normal.

This deposition of bone differs from other calcific deposits which may take place in the body, such as in the spleen, liver, kidney, etc., under certain pathologic conditions, so that we feel quite positive that under suitable conditions, true bone may form from the periosteum.

Hey Groves summarizes as follows:

> The periosteum is chiefly a limiting membrane of the bone. The dense bone can live, grow, undergo repair, and produce fresh periosteum after the latter has been removed. In young bones it is possible to remove the periosteum in such a way as to produce an osteogenetic membrane, this being probably due to the lifting up of the epiosteum with the periosteum. In adult bones this is impossible except after trauma or an inflammation.

In the repair of fractures of the jaws, we feel that the retention of the periosteum is highly desirable, because its removal takes away much of the epiosteum, and, also, because it affords a ready means of vascularization.

While there is a wide diversity of opinion regarding the function of the periosteum in bone repair, all investigators seem to agree as to the function of the compact and cancellous bone in the process of repair.

Ollier proved that quite apart from the periosteum and the marrow, compact bone could live and produce new bone and undergo the callus repair of fracture. The deep surfaces of bone, like the superficial surfaces, are capable of osteogenesis under suitable stimulus.

Axhausen has shown that the wide haversian canals contain active osteoblasts and favorable conditions for new bone formation. It has been observed in gunshot fractures in France that when the ends of the fragments have been exposed and laid bare, by stimulating the ends by a drill, in a short time buttons of granulation tissue would be pushed out and would soon cover the entire ends of the bones. These ends could then be put in apposition, and union of fragments would result. In our clinics, we have had to resort to this method in some old ununited fractures, in which we have had the process of repair again started. It is our opinion that compact bone, if it has the proper blood supply, is quite independent of either endosteum or periosteum for bone growth and for bone repair.

The whole process of repair of bone is fundamentally that which takes place in the union of the soft parts. In fractures of the bone we may have primary union, or, we may have secondary union by granulation tissue; this granulation tissue differs from granulation tissue of the soft parts in that it is osseous in character. The injured tissues, infiltrated with blood, soon become invaded by leukocytes and effused blood plasma. Firbrinous coagulation takes place and the ends of the fragments are embedded in a dense, ill defined mass of firm, cellular exudate. The periosteum becomes much thicker, softer and more vascular; a thin layer of gelatinous or viscid liquid is found between it and the bone for a short distance from the edge of the fracture. In about fourteen days, the effused blood is completely absorbed, leaving a firm, dense, cellular, vascularized, partly organized mass of granulation tissue. The bone then undergoes rarefying osteitis, and the fracture becomes fixed. This is known as the "provisional callus."

While this process is going on, similar changes are taking place in the cancellous bone, and the "internal callus" is formed in the same manner. Ossification then takes place, thus completing the process of repair. While the callus is forming, the process of repair is going on in the contiguous soft parts, and they regain their normal condition and function.

Very briefly, the foregoing is what seems to take place in the process of repair of fracture of the jaws. Occasionally there may be an excess of rarefying osteitis, and a lack of production of osteoblasts, so that the callus may not ossify. In these cases, the bone is absorbed for a considerable distance between the ends of the fragments, and we have established a false joint or pseudo-arthrosis.

When an open or compound fracture becomes infected, suppuration ensues, and the process of repair is slower, because the suppuration of the wound delays or prevents the formation of the provisional callus, and it has to depend on the formation of the internal callus, which is not so favorable for rapid repair. In these cases, the callus is larger and more irregular than that which we see after simple fractures, when the process of repair takes its normal course.

Another phase of this subject which we shall consider briefly is some of the complications which occur in fracture of the jaws. Fractures of the jaws will differ from fractures in other parts of the body in that they are more liable to infection on account of the close proximity to the bacteria-laden fluids of the oral cavity. We rarely find infection present in simple fractures of the jaws, but it is quite common in compound fractures.

A factor which must be considered in relation to infection in fractures of the jaws is the presence of alveolar abscesses, which may be existing at the time of the fracture or may be superinduced by the injury. These will greatly delay the process of repair and should be eradicated before repair can be expected to take place.

In fracture of the maxilla, the antrum is frequently involved and may become infected. This makes another serious complication. It means clearing up the infection in the antrum before the process of repair will go on in a normal way.

Another rare complication in fracture of the maxilla is the fracture of the brain case, in which coma or even death may result immediately. Secondary hemorrhage is one of the complicating problems that is quite common in fractures of the jaws on the battle fields of Europe. This comes on after suppuration has been established and is the result of infective inflammation causing a disintegration of the hemostatic thrombosis, or ulceration or sloughing of the walls of the vessels. This secondary hemorrhage may occur any time between the beginning of the process of repair and the complete repair of the fractured blood vessels.

The laceration or severing of sensitive nerve trunks will lead to anesthesia of all of the parts peripheral to the fracture, and neuralgia is a common sequela.

Trismus is an early local complication that is nearly always present. This is usually brought on by the violence that is produced on the soft tissues and the temporomandibular articulation. In extreme cases, where it is not possible to make the reduction at once, the trismus may be so pronounced that a general anesthetic may have to be resorted to in order to obtain sufficient relaxation to make a diagnosis and subsequent reduction.

In gunshot fractures, there are other local complications, such as extensive laceration of the soft parts, which will greatly add to the difficulty of making a diagnosis and prosecuting the treatment. In these cases, there will usually be greater splintering and fissuring of the bone than in the fractures in civil practice. It is reported that in every case of gunshot fracture of the jaws, infection of the wound ensues immediately, which greatly interferes with the process of repair.

In the work at the front on fracture of the jaws, the history shows that many of these cases are not treated until some time after the injury. Here a new complication arises. In these cases, frequently large masses of cicatricial tissue have formed, and a marked deformity is present. Under these conditions, a clear and definite diagnosis may be difficult, and the successful reduction of the fracture made arduous.

Another local complication, which is almost universal in gunshot fractures of the jaw and sometimes met with in civil practice, is loss of substance of the bone. Here again difficulties arise in making a successful reduction and subsequently retaining the fragments in normal relation.

Under the general complications of fractures of the jaws, there are a few factors that must not be overlooked. There are certain diseases which, when present, seem to hinder the process of repair. Such diseases, as syphilis, alcoholism, tuberculosis and such chronic diseases as will cause a marked lowering of the vitality of the patient. These conditions will always delay union and may prevent it entirely.

It will not be out of place, perhaps, in this brief paper to say something regarding the prognosis in fractures of the jaw. The prognosis must vary greatly according to the location of the fracture, the character of it, the complications which are present or which follow and the age and resistance of the patient. The time which elapsed between the injury and the reduction of the fracture will also influence the prognosis. The prognosis should take into account several points: First, the effect of injury in respect to a favorable or unfavorable termination of the case; second, its simple or complicated course; third, the influence of each complication; fourth, the time required for recovery; and, fifth, the result as to normal occlusion of the teeth and normal functions of the jaws. The younger the patient, the more favorable the prognosis, because in the young fractures unite more easily and promptly than in the adult. If the fracture has existed two or three weeks previous to its reduction, and if there is considerable movement of the fragments, consolidation will not take place as rapidly after the parts have been brought into normal relation as it would if reduction were made at the time of the injury.

The presence or absence of infection plays a very important rôle in the duration of the treatment. In a simple fracture of the mandible where the fragments remain or are replaced in perfect contact, repair will take place at once without any untoward symptoms, without deformity or malocclusion, and without detriment to the functions of the jaws. If the fragments are not quite in apposition in simple fracture, but nearly so, the prognosis will be almost as favorable, although it will take somewhat longer for repair to take place and there may be some slight deformity manifested in malocclusion of the teeth.

All compound, comminuted and complicated fractures, which in their very nature present additional obstacles in the way of complete reduction, may not present so favorable a prognosis. In fractures of the superior maxilla, the fragments will not be subjected to muscle strain as those in the lower jaw, and the retention of the fragments in normal position will not be so complicated. Fractures of the condyle with displacement offer less in the way of favorable prognosis than any other fracture of the lower jaw. In these injuries there usually will be produced a traumatism in the temporomandibular joint which may later result in ankylosis.

Gunshot fractures of the jaws, which are necessarily in most cases compound and comminuted, are in a much less degree amenable to treatment than most other fractures. Splints for supporting the fragments must necessarily be more complicated, and infection is always present. All of these factors must be taken into consideration by the operator in forming a judicious prognosis in the treatment of fractures of the jaws.

Time will not permit us to discuss at length the treatment of fractures of the jaws. The treatment of these fractures consists in the fulfilment of three principal indications:

1. Reduce the broken fragments.
2. Retain the parts in normal relation until consolidation has taken place.
3. Prevent or control inflammatory processes.

No hard and fast lines can be drawn relative to the treatment of fractures of the jaws, for each case will present an entirely different problem.

In the treatment, the operator should aim to establish normal forms and normal function. The different forces, such as muscular tension, the force of gravity, movements of the tongue, etc., which tend to displace the fragments, must be taken into consideration in determining the methods of treatment.

Individual ingenuity must ever play an important rôle in the treatment of fractures of the jaws. Equally successful results will be obtained by means and methods that are wholly different. In the construction of splints, the aim should be so to design them that all parts of the mouth may be kept clean, without which normal repair will not take place.

ABSTRACT OF DISCUSSION

Dr. Thomas L. Gilmer, Chicago: In war, especially in trench warfare, injuries above the clavicle occur in the majority of cases; therefore, the jaws are involved often. It is almost impossible to have a fracture of the mandible that is not compound. And another complication follows that one—infection. It is frequently seen in cases of fracture in the mouth. It does not delay or prevent union, provided the infection is very slight. If the infection is extensive, make an external opening and drain to prevent destruction of tissues.

I have not seen a single case of traumatism of the temporomandibular joint as a result of fracture in civil practice. In the treatment of these cases the main object is to approximate the fragments. The fracture will unite more quickly if the fragments are not immobilized. There seems to be a greater osteogenetic influence where there is slight movement. I have employed an orthodontist extension arch, fastening it to the teeth on the upper jaw as well as to the lower, and then securing the upper bar to the lower bar by wires. The mouth can be opened every day. If you do not use immobilizing appliances, the patient must be instructed that under no circumstances is he allowed to use food which will require mastication.

Dr. Truman W. Brophy, Chicago: Some years ago I saw in Europe a method of passing a bar on one side which had several wire bands adjusted to the teeth which ran on a slide fixed to the other jaw and also were fixed by bands to the teeth. These bars run in slides, thereby holding the long fragment where it belongs and thereby preserving the occlusion of the teeth. We must never forget that we can hold the teeth in occlusion on the side of the long fragment. In case a great deal of bone has been lost, cicatrization will preserve the lines of the face. When a portion of bone has been lost, there is no better treatment than by following the principles laid down by Dr. Gilmer. If only the third molar is left, let it hold the fragment in its proper position. The teeth on that side will be held in position and the intervening space will be filled in by new bone arising from the periosteum. If we can hold these in approximation very often much bone will form. By employing the method of wiring the teeth together we succeed in getting a good union, though part of it is cartilaginous, or rather fibrous. The proper occlusion of the teeth is preserved.

Dr. Arthur D. Black, Chicago: It might be of interest to know that in the Plastic and Oral Surgery Course of the Army the men are instructed that in every place where there is a fracture they are to make an external incision into the open space between the ends of the bone.

Dr. John E. Nyman, Chicago: In treating these fractures we need some means of mechanical fixation quite apart from that supplied by the teeth. In one case of multiple fracture we used platinum screws and wires because we thought that they could be sterilized more easily. The result was excellent.

Dr. Arthur Zentler, New York: Dr. Depage and his associates use a new nomenclature for jaw fractures, terming them according to location, premolar, retromolar, retropremolar, and right or left. At LaPanne they have adopted a new method of treatment. For instance, in a case of retromolar fracture of the mandible, they attach a band to a tooth in the part which is not loose. Another band is attached to a tooth in the loose portion. To these bands a heavy expansion arch wire was previously soldered which extends and overlaps a similar wire soldered on the other band. The fracture is reduced with the patient anesthetized, and with soft solder the overlapping ends of the wires are united in the mouth.

Dr. A. W. McCullough, Pittsburgh: The first essential in reducing fractures is to secure apposition. Dr. Gilmer's wiring becomes rather tiresome to the patient after a few days and he wants it removed. I have used Angle's bands on the teeth, together with rubber bands attached to the upper and lower Angle's on teeth. Sometimes it works very nicely and gives the patient an easier condition of the muscles than we get when the jaws are wired together with immobilization. Regarding bands, we have used three or more bands, with bar attachments; bands of the Lukens design, that may be adjusted easily or changed, and which I prefer to cementing.

Dr. Frederick B. Moorehead, Chicago: Dr. Lyons' experimental work does not tally with the principles of bone regeneration as we understand them. It is understood that regeneration of bone must come from the osteoblasts, and that the periosteum per se has no capacity of bone regeneration. Dr. D. B. Phemister of Chicago has proved that bone transplants without periosteum are quite as vital in their function as those with the periosteum. One may take a section of bone from which the periosteum has been removed and then remove the subperiosteal layer by cutting it away and it will be found that that piece of bone has a certain capacity for regeneration, which must, of course, be found in the osteoblast. It must be true that in transplanting periosteum into muscles, as reported by Dr. Lyons, some of the osteoblasts were retained in the periosteum in its removal from the bone. The French method of treating fractures of the jaw is not to immobilize. Where there is no displacement and no tendency to displacement in muscle movement, a fracture of the jaw is more satisfactorily treated without immobilization than with it. Fixation and immobilization are necessary only where there is displacement, which cannot be controlled except by immobilization. It is doubtless true that the amount of movement occasioned by the muscle only acts as a stimulant and hastens repair.

Dr. Chalmers J. Lyons, Ann Arbor, Mich.: I think we are getting away from fixation of the jaw. We must retain the fragments when there is displacement. In mandibular fractures, where there is little or no displacement, we are getting away from the intradental ligation. The experience in fracture work of the men at the front is going to bring out many new things. Ordinarily, where there is infection of the mouth we can get along much better without fixation. In gunshot fractures I question whether intradental ligation has much of a place on account of infection. The point Dr. Gilmer brought up about external openings is a method we have resorted to in many cases. If an abscess forms you must drain. If pus forms around a fragment, repair is going to be retarded. It is much better to make an external opening at once. Relative to Dr. Gilmer's point of the osteoblasts lying just under the periosteum, we all recognize this fact, and it is to this layer that Hey-Groves has given the name of epiosteum. It is the osteogenetic portion of the periosteum. Without this layer of cells, the periosteum has not the property of producing new bone.

Improved Approach to Kidney.—Dr. G. Kolischer describes a new incision which he had devised for exposing the kidney (*Interstate Medical Journal,* 1918, **25**, 128) and which reduces the amount of destruction to the soft tissues of the abdominal wall. The patient lies on the operating table in such a way as to make his flank protrude. The skin incision is made half way between the twelfth rib and the crista ilii, and parallel to the rib, beginning at the anterior edge of the latissimus dorsi, and slanting downward the center of an imaginary line running from the umbilicus toward the spina superior ilii. The incision extends down through the fascia. Both lips of the wound are undermined for 2 or 3 inches. Retract the flaps so as to expose the external oblique. Separate the fibers of this muscle bluntly in the center, and also those of the internal oblique, including the transversalis. The fascia transversalis is split vertically with the knife and spread wide open with retractors so as to give a free exposure of the kidney. The wound is closed by reuniting the fasciae and approximating the skin edges. Tension sutures are also inserted.

THE MEDICAL PRACTITIONER AND MENTAL HYGIENE *

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To the average medical practitioner the subject of mental hygiene is more or less a closed book. At the most, its mention probably arouses little more than vague ideas concerning sets of mental tests or insanity. Few physicians appreciate the importance of mental training and its consequences, most being content to think that all that is necessary for healthy mentality is the possession of a healthy body. The fallacy of this view has been very strongly emphasized by the results of examinations and experience in the building up of our new Army.

The exemption boards have rejected something like one third of all drafted men, and one may take it for granted that none of the more obvious defects in construction have been overlooked in this process. And yet of the selected two thirds accepted for service by these boards, over 1 per cent. have been found unfit because of some mental or nervous deficiency. What the proportion of rejections by the exemption boards for such conditions is, I do not know, but, if added in, it is highly probable that not less than 2 or 3 per cent. of the male population are, on nervous grounds, unfit for Army service.

The demands of military service are, it is true, extremely exacting and the stresses and strains to be endured out of all proportion to those of civil life. But it must also be realized that in the Army men are subjected to intensive training, and that in consequence of this training some who would in all probability have failed in civil life will have a greater chance to succeed. Repeatedly, we hear such remarks in reference to enlistment as "It is just what he needs," "It will be the making of him," etc.

It may be urged that military training is essentially physical, that the principal benefits derived from it come from the setting-up exercises, outdoor life and regular habits. But is this all? Is there not even more training in the way of mental adjustments? The discipline and self control, the meeting with others on equal terms and all that this implies in the way of social adjustment, the morale and *esprit de corps* which figure so largely in our estimate of good soldiers, the demands for punctuality and strict performance of even distasteful tasks, and the steady persistence toward the accomplishment of a definite purpose all serve to form, as we say, the character of a man. It is possible that, especially in war time, there is a tendency toward limitation of individual responsibility, which may not be altogether desirable as an element of education.

Mental hygiene is a branch of medical science which deals with the establishment of habits of adjustment similar in kind to those sought in the Army, though designed more especially to fit the individual for civic duties rather than for fighting a human enemy. Just as the rules of bodily hygiene are intended to maintain bodily health, so mental hygiene attempts to lay down principles which will permit the individual to adapt himself, in a manner satisfactory to himself and to society, to social regulations. This means the control of personal longings and desires which are primeval and inherent in life itself.

Every one receives training in habits of adjustment of one kind or another. This begins in the home, whether that be a palace or the streets, and is also by far the most important part of the school curriculum. It is strange, in the face of this, that more attention has not been given to a study of the methods to be followed, the results desired and the harmful consequences of poor technic. This study is still in its infancy and there is urgent need for assistance from physicians everywhere.

As has been true in the early history of many other branches of medicine, most of what we have so far learned has been gained from the study of the end-results of faulty methods, pathologic behavior in all its varieties, including most of the insanities, the psychoneuroses, crime, delinquency and dependency. It is now essential for further progress that we begin to study the earlier stages when the habits are in process of formation, when the conditions for their establishment are open to investigation and when the prospects of modifying the habits are at a maximum. This implies reaching into the homes and schools.

Let us consider for a moment the factors involved in the consideration of mental adjustments. These may be divided under the two heads of (1) quantity; (2) quality. The former is structural; the latter functional. The one represents the tools with which the individual is endowed and must make his way, the wealth or poverty in nerve centers and associative connections provided by inheritance which we can, at present, do but little to modify. The principles of eugenics are far too little established to permit of any but the most empirical and superficial interference, attempts at which have been compared by Maudsley with those of trying to repair a broken watch by stirring its inside with a stick.

The best that we can do at the present time is to try to estimate the quantity of brain tissue available and then plan so to train it that the most efficient use possible may be made of it. It is this estimation of native ability which is attempted in the various forms of intelligence testing that have been and are being constantly evolved. Their application is a relatively simple procedure and does not require medical training for its performance. The situation with regard to its use is much the same as that of the Wassermann test in relation to diagnosis in somatic disease.

The quality, on the other hand, represents the use which is made of the tools available. To what extent this is inherent in the structure of the brain and in how far it is the result of training and education is not yet known. It is easy to allege and to collect statistics to prove the contention that a faulty mode of reaction, such, for instance, as crime, is inherited. But it must not be forgotten that the offspring of criminals not only inherit their structure, but that they also receive their early, most effective and important training in an environment of criminality. Similar reasoning applies also to hysteria and dementia praecox, in the causation of which heredity has been alleged as a prime factor.

Whatever be the true relation between these two causative factors, there can be no question but that training in habits is far more readily open to interference than is that of heredity. But, in order to accomplish this in a rational manner it is essential that we answer certain questions which may be placed as follows:

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. What constitutes a healthy or satisfactory adjustment?
2. What are the indications of a liability to fail?
3. What measures must be taken to remedy or minimize these faulty tendencies?

The answers to these questions can at present be only roughed in for the reason that, in the main, we have studied only the grosser end-results and have yet to investigate the earlier phases and lesser degrees.

The answer to the first question depends on the following considerations: The struggle for life has led to the adoption by man of a gregarious or social mode of existence by which there is provided a greater strength through the mutual assistance and cooperation of many individuals. But each individual has also an innate and biologic urge for self preservation and reproduction, which must bring him into competition with his fellows within the social group. In order to avoid the disruption of society, which would result in the failure of man to maintain his supremacy in the world, it is obvious that individual desires must be subjected to certain limitations and restrictions.

These make up our laws for the regulation of conduct which have been gradually evolved with the progress of social union.

But with the growing strictness and extent of social regulation, there has been no diminution in the biologic desires of the individual, and we must regard a successful type of adjustment as one which secures individual satisfaction without offending social regulation. To illustrate roughly, a man is not allowed to seize something which especially attracts him, but must either secure its acquisition by fulfilling certain preliminary requirements, or must forego his desires and look for satisfaction in some other way.

The particular method which is adopted of looking for satisfaction "in some other way," represents exactly the problem with which the student of mental hygiene is concerned. This brings us to the second question.

It would take too long to attempt to go into the various faulty habits which have been recognized as types, and I must content myself with merely indicating that they include many of the so-called insanities, psychoneuroses, delinquencies, etc., referred to. As an example might be quoted the individual who develops a war neurosis as the result of finding himself in a situation rendered intolerable because of the conflict between his individual desires (including that to be out of all the horrible conditions of military duty in time of war) and the regulations imposed by the urgent demands of society which have placed him in that position. In developing the neurosis, he adopts a mode of adjustment which, painful as it often is, yet relieves him of his larger difficulties.

It is true that in this illustration I have chosen a case in which the conflict is intense and one which, in all probability, the person would never have had to face in times of peace. But the main value of the example lies in the fact that proper hygienic consideration can prevent the breakdown. This has been conclusively shown by the avoidance of neuroses in certain Army units through the watchful care of competent psychiatrists. It cannot be doubted, however, that some men will show poor adjustment under less strain than others, and that such persons will develop neuroses or psychoses even under the apparently simplest conditions of civil live.

It is with this last class that we have to deal more especially in our everyday social work, and it is for evidences of a tendency to react to situations of more or less difficulty in some manner which will place the individual in an extrasocial position that we must look in our efforts toward mental hygiene. These traits of behavior are being gradually more clearly defined in the gross and will become more easy of detection when we become possessed of more complete longitudinal studies of life histories.

The answer to the third question likewise depends on a clear formulation of the meaning and essence of the various types of pathologic behavior. At this point, it is also necessary in reaching conclusions to take into consideration the quantity feature, which has been discussed. The methods of treatment to be followed are similar in kind to those adopted in the Army today for the treatment of war neuroses. They concern education, the development of interests and habits, and have nothing to do with punishments arbitrarily inflicted.

Let us now turn to the question of the function of the medical practitioner in relation to this work. That it is a medical problem, even with regard to those disorders of behavior, such as crime and dependency, which are more generally considered as belonging to the layman, there can today be no question. That expert knowledge and direction of the work is also essential needs no demonstration. For this, unquestionably, as in all matters of public health, the state must provide the means. But the actual detailed work is enormous, as it must be carried even into the most remote communities and homes.

Numerous public and private agencies, dealing with some one or other of the phases of these problems, already exist, but they are often hampered by lack of authority and support, by overzealous or unwise technic, and they frequently overlap in their functions. To overcome these difficulties, state direction would do much, but there is also needed a closer cooperation on the part of the local physicians who must furnish the medical skill required for success.

For this purpose it is obviously necessary for the physician himself to be trained. Our medical colleges teach practically nothing along these lines, even though they devote considerable time to bodily hygiene. Courses in psychiatry are given, but as a rule they are extremely brief and contain little but a formal enumeration of what are described as the symptoms of certain more or less definite diseases. The human mind is not less important in the welfare of society than the body, and it is a far larger subject, embracing, indeed, within its field a consideration of the body and its diseases. Yet four or five times as much of the curriculum is devoted to neurology as to psychiatry.

If it does nothing else, this war will have performed an inestimable benefit to society by bringing prominently forward the importance of mental health to national efficiency. The demand for trained psychiatrists by the Army is far in excess of the supply, and yet the Army must be considered as one of the most sternly practical businesses this country has yet engaged in. The importance attached to mental hygiene in the Army is well shown by the fact that of all the medical specialties this is the only one which has been deemed so essential as to require a special representative on the divisional staff.

The object of this paper is, therefore, a demand for wider recognition in the medical profession of the subject of mental hygiene and the enrolment of medical practitioners for the furtherance of this work in the local community.

ABSTRACT OF DISCUSSION

Dr. Meyer Solomon, Chicago: This is a big problem. The recent work of many psychopathologists has been wholly an effort to emphasize the psychogenic aspect, making of the individual who has the mental upset more or less of a scapegoat, putting the blame on him; he is responsible for everything. As I see it, the problem is a far broader one than that. Mental health is interrelated with the general problem of education, religion, etc., which develop attributes of mind in the individual, and attributes of mind have a great deal to do with the way we react. Then, also, it is related intimately with the physiologic state of the organism. A man being overworked, underpaid, underfed, etc., is not going to have a stable organism, no matter how stable it was originally. For that reason we find that mental health is closely related to all the sociological and economic problems that confront us. Each individual is an individual problem. If a person has an innate, congenitally feeble nervous apparatus due to syphilis in the mother, contracted from the father, a preventable illness, who is to blame? Is not the remedy *a system of education in the control of disease*? Fundamentally it is a simple proposition. Instill into the mind of the child and the adult a strong, bold philosophy in life under which the individual can stand all sorts of disappointments, all sorts of trials and tribulations and still fight, without any grudge against anybody; an individual who will take an independent view of life, not running away from the struggle but facing things as they are, trying to reform, to construct, to change circumstances and environment to conform to the ideal whereby he or society shall benefit. Mental hygiene, from the so-called psychogenic point of view, is *nothing more than an attitude in life*. If the education a man has had in school and in church, or the training he has received at home, or the views thrust on him by the press or the books he has read, give him a wrong philosophy, all this is intimately related to the way he is going to react in life. Education is the big thing.

Dr. Joseph Byrne, New York: The question of education is one of the most important and fundamental that the medical profession has to deal with, but we are not "putting it over." We use a nomenclature that people do not understand. Why not get "next" to the people and make education real and not a *myth*? Education primarily is a superstructure erected on inherited tendencies, on instinctive capacity. Every human being, when young, is afraid of everything; an animal when *young* is afraid of everything. Try to teach a canary to take a seed off your finger: he is attracted, but repelled by fear. After a long time he is trained to take the seed. Education *in the broadest sense* is orientation; and orientation means nothing more than the elimination of fear in the child. An individual who has not been orientated up to *22* is afraid to mingle *with his fellow* men. A man may be well educated along social lines and he may be a wonder esthetically, but he may be no good ethically. In considering those people who have an unfortunate criminality, what kind of philosophy have we as medical men? Rotten materialism ofttimes, narrow minded in not taking into consideration the whole aspect of education in a health sense. Here is a poor fellow who does not understand the conflict between his fundamental sex instincts and society at large. What is the proper education for him? Explain to him that his instinct must be held in check to a certain extent.

Dr. Hugh T. Patrick, Chicago: I have just been having four weeks' experience in examining recruits for the Army. One man seemed to be very nervous, apprehensive and unstable, although he had been living the life of a fairly useful citizen. He had worked steadily, was devoted to his mother, made fair wages, and had no bad habits. He did not save any money. On the whole, he was *a fairly useful, peaceable* citizen, useful to society and quite bearable for himself. But when he got to the camp the emotions incident to leaving his home, to changing his environment, the anticipation of what might be ahead of him, the fear of the unknown, made him very nervous, and we thought that probably he was not fit to go. Largely for my own information and education in this matter, I had this man put to regular army work for ten days. At the end of five days he was returned to our ward because he was nervous and could not do the work. The man had become worse; he had become so much worse that we rejected him. But he did not get away from the camp because his people had to be notified and the formalities had to be gone through. Two days later his brother arrived to take him home, but the boy *was not in camp. He had slipped away* and committed suicide by throwing himself under a train. In other words, he had to get away from an intolerable situation. That was a case in which we tried to operate mental hygiene, but were a little too slow in motion to prevent this catastrophe. Another boy showed that he was very unstable. He was hypersensitive physically and emotionally, and we definitely rejected him on first examination. He was not a very useful member of society, although he was self-sustaining. He did not work steadily; he was more or less hypochondriacal; little things upset him. But he made a living and was on the whole a tolerable citizen. Again the delays in getting him out of the camp were sufficiently prolonged so that after four or five days I found him in the hospital absolutely disabled, shaking like a leaf. How long that disability may last is a matter of guess.

These are two examples which are illustrative of the point that we should get these *imperfect organizations early enough* to prevent the catastrophe that will be precipitated by a change of surroundings which will be intolerable to the individual. *This would seem to be peculiarly applicable to the* present time when many of us are of necessity examining drafted men, whether on draft boards or advisory boards or in camp. *I would like to urge that we take the chance rather* of rejecting too many of these men than of allowing too many of them to get into the Army.

Dr. William O. Krohn, Chicago: If we can impress on the general practitioner's mind the fact that the child at birth possesses every brain cell it ever will have, and that if these cells are brought into use and activity they will live, but that they will die from inactivity and disuse, then the general practitioner, *cooperating with school and home*, will through educational forces see to it that all these brain cells are brought into use and activity. Erratic development comes from not recognizing the fact that the child *never has a single* brain cell added after birth.

Dr. Edward E. Mayer, Pittsburgh: In connection with a previous paper it was stated that psychiatrists do not remember *and* utilize their anatomy and *physiology. In conditions* involving mental conflicts I try to bring about in the attitude I take toward any patient the personal equation. I try to elucidate the psychogenic factors, and I try to think of mental hygiene as *much as possible*. But, at the same time, I want to keep on studying and to remember what we know of the architecture of the brain, which is so often forgotten. *The remark that* impressed me was *that* at *birth* the child has all the brain cells it will ever have. This is not true. Psychiatrists are starting to talk of biologic education, etc., but they go all around the bush in their discussions and we never hear a word said about the exact technic of brain architecture. Of course, we cannot talk about it in terms of personal equations, and yet back of *the reactions* in individuals, as Dr. Singer hinted in his paper, are these differences anatomically and physiologically in the individual, and I do not know why psychiatrists always forget *that*.

Dr. C. R. Ball, St. Paul: It is rather interesting to note that without any correlation or prearrangement these subjects have practically dovetailed into one another, and the subject of mental hygiene has been the one that has been uppermost in the minds of the essayists and also of the hearers. The wonder is why this subject, which is of such material importance, should be so long *in making* an impression. In our social life and civilization mental hygiene is one of the greatest and best and most practical of subjects, and it holds more for the psychiatrists than anything else within their reach. I have wondered why the school teacher never takes into consideration what the inheritance of a certain child is, what its social environment is, what its particular adaptabilities and talents and characteristics are. They crowd down uniformly the same sort of discipline and the same sort of education and the same standard of grading for all children. There can be nothing less intelligent. We do not do that in the raising of live stock. Another thing that we are just beginning to recognize and apply definitely to this subject is that all these little defects which, so far as the efficiency of the individual is concerned, are very important, have seemed to create a tendency even among ourselves to look on them as something that demanded exceptional ability. We have the tendency still, when we go to a show and see a man who pretends to be drunk to act as if there was something entertaining about seeing a man drunk. We are proud of our lack of control. But we have come to look on these deviations and derivations and mental defects or deficiencies as so many black marks under mental insufficiency, and that is where they belong. How we are going to stop crime and cure criminals is going to have a great deal to do with the wonderful change in our conception of these people and our methods of handling them.

DR. H. DOUGLAS SINGER, Kankakee, Ill.: What I was trying to do in presenting this subject was not to arouse a philosophical discussion, but to stimulate an interest in it from a practical standpoint, for that is what we are working for at this stage. I believe the time is here when mental hygiene will have to be taken in hand practically. The various states are stirring up quite a little interest in it, although the medical schools are lagging behind. What are we trying to do? Educate the people. But we must consider it from the medicopsychiatric point of view. There is a great deal of work yet to be done.

BLOOD PRESSURE STUDIES OF FIVE HUNDRED MEN

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The studies for this report were made on men who applied for examination for the American Army Aviation Service. It may readily be seen that a long period of study could not be given to each applicant without causing unwarranted delay to the applicant and also to the other examiners. A Tycos instrument, daily tested with a mercurial sphygmomanometer, was used for all blood pressure estimations. All readings were made by one examiner in order to reduce the personal factor to as small an error as possible.

Readings were made with applicants in (1) the recumbent position; (2) standing, before exercise, and (3) standing, after measured exercise. The readings, in the first position, were made after the nervous excitement had become controlled as much as possible. This factor was commonly very prominent and often difficult to control, sometimes requiring the subject to return for a later reading. For the exercise test, a flight of twenty-four steps was used, each step having a 6-inch rise. Since the average weight was 142.6 pounds, the work performed averaged about 1,600 foot-pounds in five seconds. The area of cardiac dulness was estimated by percussion. The systolic and diastolic pressures were obtained by auscultation, and the diastolic pressure was read at the point of change from the third to the fourth phase.[1] After the exercise test, the time required for the blood pressure to return to the previous standing point was noted in 200 of the men examined and recorded as recovery time.

The range and average of the readings in the recumbent position for the 400 cases that stood all tests as good normals are given in Table 1.

I recognize the danger and, more often, the waste of time in the use of mathematical formulas for the interpretation of clinical findings. But a few such formulas have been so frequently used in blood pressure studies that I have arranged their values in Table 2 as derived from the first table.

TABLE 1.—READINGS FOR FOUR HUNDRED CASES IN RECUMBENT POSITION

	Age	P. R.	S. P.	D. P.	P.P.	Phase Lengths			
						1	2	3	4
Range.....	19 - 39	78 - 94	119 - 132	80 - 88	39:44	8 - 18	20 - 26	5 - 10	4 - 6
Average...	24.2	85.4	127.7	84.1	42.2	12.1	24.5	6.2	5.1

Tiegerstadt, using Strassburger's blood pressure quotient, measured the cardiac efficiency by dividing the velocity of the arterial flow by the work of the heart, and adopted the formula $\frac{PP \times PR}{SP \times PR}$, with an estimated normal value of from 30 to 35 per cent.[2] Stone,[3] recognizing the value of the diastolic pressure in estimating the heart load, adopted the formula $\frac{PP}{DP}$, with a normal value of 50 per cent. Goodman and Howell,[4] in their studies of the auscultatory pressure phases, designated the second and third phases as measures of cardiac strength, and the first and fourth as the phases of cardiac weakness. From these studies they concluded that a cardiac strength factor greater than a cardiac weakness factor denotes a competent myocardium, especially if the second phase length equals more than 40 per cent. of the entire pulse pressure length. They determined the normal value of C. S.: C. W. as 55.4:44.4.

TABLE 2.—PERCENTAGE VALUES DERIVED FROM TABLE 1

	$\frac{\text{P. P.}}{\text{S. P.}}$ %	$\frac{\text{P. P.}}{\text{D. P.}}$ %	C. S. %	Second Phase P. P. %	Crampton %
Range...........	29.8 - 36.9	48.9 - 56.7	54.1 - 56.6	46.2 - 62.6	75 - 100
Average.........	33	50.2	55.8	57.4	86.9

Crampton[5] has worked out an ingenious table for measuring the percentage of vasomotor efficiency through the differences in the pulse rates and systolic pressures in the recumbent and standing positions. This table is based on the fact that the vasomotor tone is increased, normally, on changing from the recumbent to the upright position. Consequently the systolic pressure is increased and the pulse rate is either unchanged or slightly increased. In conditions of lowered vasomotor tone, the systolic pressure remains the same or is decreased on the change of position, and the pulse rate shows a definite increase.

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[1] Warfield, L. M.: Studies in Auscultatory Blood Pressure Phenomena, Arch. Int. Med., September, 1912, p. 258.

[2] Muller: Med. Klin., 1908, 1, 47.

[3] Stone, W. J.: The Clinical Significance of High and Low Pulse Pressures with Special Reference to Cardiac Load and Overload, THE JOURNAL A. M. A., Oct. 4, 1913, p. 1256.

[4] Goodman and Howell: Am. Jour. Med. Sc., 1912, 142, 334.

[5] Crampton, C. W.: New York Med. Jour., 1913, 98, No. 19.

The results for each person come well within the normal value given for each formula. The percentage ratio of Goodman and Howell's cardiac strength factor was *persistently high and showed only the narrow* percentage range of 2.5 in the 400 men examined. The ratio of the second phase to the value of the first, second and third phases, or the blood pressure length, shows a wider range and a high average. In several men, still in active training, a very prominent second phase was noticed.[6] The length of this phase seemed to be at the expense of the first and third, since the fourth phase was always of average length. Tonal arrhythmia, as described by Goodman and Howell, was never noticed in this group. In forty cases, or 10 per cent. of the total, a blurring of one or more of the phase tones was noticed. This was never so marked as to make the phase limit very difficult to recognize. Where this blurring was limited, it was usually found between the first and second phases, and in only two of the forty cases was it found limited to the third and fourth phases. These were cases showing intense excitement, difficult to overcome, in which readings taken two days later showed clear, normal, phase tones.

TABLE 3.—READINGS AFTER EXERCISE

	P. R.	S. P.	D. P.	P. P.	Pressure Phases				Recov. Time Min.
					1	2	3	4	
Range	86 - 138	128 - 158	84 - 96	44 - 68	8 - 18	24 - 49	6 - 16	6 - 9	3.1 - 7.6
Average	112	145.4	90.6	54.1	13	33.5	11	7	4.4

Table 3 gives the blood pressure findings after measured exercise, and a comparison with Table 1 shows the characteristic increase of both systolic and diastolic pressures after exercise, with the more marked increase in the former, causing an increase of pulse pressure.[7] In the pressure phases, the most marked increase is in the second phase.[8] This was true in each of the 400 cases, and it points with considerable emphasis to the *importance* of this phase in blood pressure interpretations. The least increase in the second phase, after 1,500 foot-pounds of work, was 4 mm. In this series, the third pressure phase showed but little more increase after exercise than did the first and fourth phases.

In no case was the heart area found to be increased after the exercise, so far as could be determined by percussion and by the position of the apex impulse. In 31 per cent. of the cases, no change could be determined. In the remaining cases, there seemed to be a definite decrease in area. One hundred of the patients that showed a decreased area of dulness, after an average of 1,600 foot-pounds of stair-climbing in five seconds, were later given double this amount of exercise with a diminished cardiac dulness again in evidence.

It is to be regretted ~~that the~~ Barringer test[9] could not have been carried out completely in these studies, and records made of the blood pressure findings. In 200 cases, blood pressure readings were made immediately at the end of the exercise test and continued until the pressure returned to normal. In these, the apex of the systolic rise was reached in from 30 to 60 seconds after 1,600 foot-pounds of work. In the same group of 200 men, after double this amount of work, the highest point of the systolic rise was reached in 49.7 seconds; and the systolic pressure returned to its normal in from 3.1 to 7.6 minutes after the exercise, with an average recovery time of 4.4 minutes. These results agree with the general conclusions of Graupner,[10] Barringer, Rapport,[11] and other investigators, and show the normal increase, after work, in the systolic pressure, associated with lesser rise in the diastolic, with the resulting increase in pulse pressure. Associated with this systolic rise is a delayed return to normal after heavier work.

In the 400 normals, the pulse rate after exercise showed an average increase of 26.6 beats per minute, but returned to the quiet rate in from 2 to 5.5 minutes, with an average of 2.8 minutes. Definite tonal arrhythmia was not noticed in any of this group of normals.

In the following 100 cases which showed some variation from a strict normal, the findings were very complex, and diagnoses were usually impossible on blood pressure readings alone. All these men had had a more or less thorough routine physical examination that was recorded with their application papers. Consequently it is not surprising that very few cases showed some form of heart murmur. Five cases in all were detected, and these I have grouped for comparative study. Cardiac dulness was increased by the stair test in all five cases, and the breathing was objectively labored. Tonal arrhythmia was present in three cases—Cases 27, 84, 231. Table 4 gives the pressure readings in each of these cases.

The ratio of the second phase to the pulse pressure, after exercise, is found here to be low in each case, having a percentage variation of 28 to 46.1 compared with the values, before exercise, of 45.6 to 59.5. The C. S.: C. W. values are also slightly reduced after exercise when compared with their previous percentages, but to a less degree. These computations give us some basis for the diagnosis of myocardial weakness, but the same decision can be much more easily reached in noticing the change, in the cardiac area with exercise, in the dyspnea, and especially in the time required in each case for the pulse to drop to its previous rate. In these five cases the pulse rate recovery time was 10, 12, 15, 14 and 13 minutes, respectively. Case 27 at rest showed an indistinct mitral roughening that developed into a systolic murmur transmitted into the axilla after exercise. Case 34 showed the same finding at rest, and, after exercise, the mitral systolic

TABLE 4.—PRESSURE READINGS IN FIVE CASES OF HEART MURMUR

No.	Before Exercise							After Exercise						
	S. P.	D. P.	P. P.	Phases				S. P.	D. P.	P. P.	Phases			
				1	2	3	4				1	2	3	4
27	126	84	42	12	25	5	6	142	90	52	18	24	10	7
34	126	84	42	10	22	10	7	132	88	44	18	22	14	9
84	128	80	48	18	24	6	7	140	100	40	20	14	6	8
220	148	86	62	21	34	7	10	182	96	86	39	37	10	14
231	138	70	68	28	31	9	11	146	78	68	26	27	10	14

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[6] Swan: Internat. Clin., **4**, Series 24.

[7] Norris: Internat. Clin., **1**, Series 17 (bibliography).

[8] Fisher: Deutsch. Med. Wchnschr., 1908, **34**, 1141.

[9] Barringer, T. B.: The Circulatory Reaction to Graduate Work as a Test of the Heart's Functional Capacity, Arch. Int. Med., March, 1916, p. 363.

[10] Graupner: Ztschr. f. exper. Path. u. Therap., 1906, **3**, 113.

[11] Rapport, D. L.: Systolic Blood Pressure Following Exercise, Arch. Int. Med., June, 1917, p. 981.

murmur was transmitted through the left axilla and could be easily heard at the angle of the scapula. In both these cases there was definite accentuation of the pulmonic second sound. Case 84 showed no abnormal sounds at rest, but developed an aortic roughening and a mitral systolic murmur after exercise. Cases 220 and 231 showed an aortic roughening which was more marked after exercise. Cases 84, 220 and 231 were all cases with hypertrophied tonsils and with slight subjective joint signs of absorption.

In five cases the radials were definitely palpable. All of these showed abnormal respiratory embarrassment with exercise and an increased recovery time of pulse rate. A comparison of the findings in these is given in Table 5.

TABLE 5.—COMPARISON OF FINDINGS IN FIVE CASES IN WHICH THE RADIALS WERE PALPABLE

No.	Before Exercise							After Exercise						
	S. P.	D. P.	P. P.	Phases				S. P.	D. P.	P. P.	Phases			
				1	2	3	4				1	2	3	4
8	150	102	48	14	23	11	7	172	104	68	18	36	14	10
34	126	84	42	10	22	10	7	132	88	44	18	22	14	9
44	132	80	52	12	10	30	6	142	92	50	6	20	24	6
58	142	96	46	12	27	7	6	168	104	64	26	28	10	8
291	144	98	46	14	24	6	10	172	110	62	20	32	10	14

P. R. recovery time, 11, 13, 7, 14, 12 minutes, respectively.

Pressure findings in this group also show wide variations. The C. S. factor was increased by exercise in all but one case (Case 58). But the ratio value of the second phase was increased only in Cases 8 and 44. The palpable radials constitute a finding probably of little importance in these men. They all show a limited physical efficiency. Patients 8 and 44 had held office positions for several years, with little physical exercise, and impressed one as being persons to whom systematic exercise would be of real therapeutic value. With the exception of Case 34, the men of this group are now all in other branches of active service and after three months of training are considered as physically fit. I have examined three of these men (8, 44 and 58) after they had had two months of training and they showed a good normal response to exercise in every way.

Eleven applicants showed abnormally high systolic pressure with a high pulse pressure. Rest and quiet for half an hour failed to correct these high values. One of these men had smoked twelve cigarettes in the morning before the examination. Six men had made an all-night automobile trip in order to be able to keep their appointment at the examining station. Four still showed signs of the previous night's dissipations. The pulse recovery time in these ranged from 4.5 to 6.5 minutes. After a twenty-four hour period of rest, these men all showed normal pressure values with normal responses to exercise.

One man (242) showed a systolic reading of 138 mm., with a slightly increased pulse pressure. He had a low second phase ratio value after exercise and a Crampton reading of 52 per cent. The pulse recovery time was 5.5 minutes. Two days later he showed the exanthem of measles. After he had recovered, the pressure findings were normal. Recovery time was three minutes to 1,600 foot-pounds of work, and the Crampton reading was 92 per cent.

Eight men showed acute infections. Of these, three had acute tonsillitis, four had acute bronchitis and one acute laryngitis. Systolic pressure values ranged from 120 to 128 mm. As the ages ranged from 28 to 36 years, these systolic readings are but little lowered. Pulse pressure readings ranged from 42 to 46—only a little above normal ratios. Second phase ratios to pulse pressure were within normal limits during rest, but were low after exercise. Pulse recovery was delayed in each case, ranging from five to eight minutes after a rapid ascent of twenty-four steps. These men all returned for later examinations and showed normal findings.

Two cases showed hypotension (Cases 239 and 271). The systolic pressures were 98 and 101, with pulse pressures of 30 to 35 mm., respectively. No abnormal heart findings were detected, aside from soft and distant sounds. Response to exercise was very poor in both cases. Case 239 showed a second phase ratio of 34 per cent. before exercise and 30 per cent. after 500 foot-pounds of work, also a pulse recovery time of ten minutes, markedly labored breathing with slight tonal arrhythmia in the first, second and third phases, and a Crampton value of 22 per cent. Hands and feet became markedly cyanosed on standing, but no other objective signs were noticed during the period of rest. This applicant gave a history of frequent fainting attacks after exercise and excitement. Case 271 had a second phase ratio of 38 per cent. after exercise and of 41 per cent. before. The pulse recovery time was 7.5 minutes. Labored breathing was observed after 600 foot-pounds of work, with a Crampton estimation of 42 per cent.

Thirty-eight cases showed some degree of tonal arrhythmia. In seven, this persisted through all the pressure phases. In nineteen, it was found through the first and second phases, and in twelve in the first phase only. Blood pressure findings during the periods of rest were normal in all of the thirty-eight. In all those showing arrhythmia throughout the phases, the response to 1,600 foot-pounds of work was poor. The pulse pressure was increased none, or very little, after the exercise. The C. S. value and the second phase ratio were reduced. One pressure record (Table 6) will illustrate the findings in all the seven cases, as there was marked similarity.

TABLE 6.—PRESSURE RECORD IN CASE OF PERSISTENT TONAL ARRHYTHMIA

Before Exercise							After Exercise						
S. P.	D. P.	P. P.	Phases				S. P.	D. P.	P. P.	Phases			
			1	2	3	4				1	2	3	4
136	91	45	10	28	7	6	164	116	48	19	17	12	16

In these seven cases, the Crampton percentage ranged from 52 to 68 per cent. Breathing was labored after the routine amount of exercise in each case, and the pulse recovery time ranged from 4 to 6.5 minutes. Two of the men mentioned slight distress over the mitral area after exercising. Four gave a history of dyspnea and some degree of precordial pain on forced exercise, which had obliged them to give up all athletics in school, except light gymnasium work. When the exercise was reduced to a figure of less than 600 foot-pounds, these men gave normal responses.

Blurring of the phases was present in all seven cases. The rest of the thirty-eight cases arrange themselves fairly definitely, in groups of varying physical efficiency paralleling the extent of the arrhythmia. There was not sufficient time to test out each of these cases thoroughly with measured graduated exercises, but such tests could easily be made and used in determining the character of service men of this type are best able to give efficiently.

The remaining thirty applicants gave a blood pressure picture of nervous excitement, with increased systolic findings and a high pulse pressure. These cases showed normal physical findings, except for a slightly increased fulness of the pulse and a slightly lowered Crampton percentage of vasomotor efficiency. The systolic and diastolic pressures ranged from 140 to 158 and from 90 to 102, at rest, and gave an increase of pulse pressure, after exercise, of from 6 to 10 mm., slightly less than the normals. No arrhythmia was present and no demonstrable increase in cardiac dulness. There was no blurring of the phase tones. Dyspnea was not marked in any case, and there were no distressing subjective symptoms. The ages of the thirty men ranged from 21 to 32 years. The blood pressure findings were similar to those in the cases of nervous excitement, but the condition could not be controlled by recumbent rest and quiet of more than one hour's duration at the examining station. Twenty-three of the men gave normal pressure findings within one week of daily observations, with general directions regarding sleep and avoidance of tobacco, coffee and other stimulants. Seven men were observed for two weeks, with very little change in the pressure findings and vasomotor percentages. In all these cases, the pulse recovery time was normal and the men responded well to the test of climbing fifty steps at good speed. The seven men have since entered the officers' training camps, and all have stood the work well.

Among the 400 cases reported as normals, twenty-three showed high systolic and pulse pressures on the first reading. The systolic pressure in these cases frequently registered as high as 165 mm., and in three cases it was recorded as high as 175 mm. The diastolic pressure registered from 87 to 92. Consequently, in several instances, the pulse pressure was almost equal to the diastolic. Physical findings were negative and after a short period of quiet, with occasionally some reassurance, the pressure findings dropped to normal. In one college athlete, aged 22, the systolic pressure dropped from 174 to 128 mm. in seventeen minutes. The Crampton estimate in these cases ranged from 75 to 80 per cent. after the systolic pressure had been reduced. Such cases emphasize the error of basing any opinion on single blood pressure readings, especially if unassisted by the exercise test.

Blood pressure findings alone are often of little value; especially is this true if we are trying to determine a man's physical fitness. The added information given through some form of measured exercise is of definite importance. The increase in the pulse rate with exercise is of no importance. In the 500 cases here reported, there was no marked difference noted between the increased rate of the normals and that of the unfit.[12]

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[12] In addition to the references already given, the following will be found of interest:
Morris and Lane: Arch. Diagnosis, 1917, **10**, 233.
Lewis, T.: Lancet, London, 1918, **1**, 181.

RETROPHARYNGEAL ABSCESS *

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PHILADELPHIA

The subject of retropharyngeal abscess is so vaguely understood by many general practitioners, and the results of an error in diagnosis may be so disastrous, that the report of a case should be of value.

The case is reported not on account of original material, but because of the lesson that it teaches. We are too prone to adopt the habit of looking for the usual condition in a part affected, and to overlook the unusual condition when it appears. The careless physician commits the sin of assuming the usual condition. In this case the baby's life could have been saved in hardly more time than a physician would consume in putting on his overcoat. One of two conclusions must be drawn, either a physician was not called or, having been called, was negligent. A digital examination would have given him the diagnosis.

No history of the disease can be given. The body of a negro baby, aged 2 years, being unclaimed, became the property of the State anatomical board and was delivered to the Daniel Baugh Institute of Anatomy of the Jefferson Medical College of Philadelphia for scientific purposes. The preservation being poor, the body was valueless for routine study. A midsagittal section was fortunately made by Dr. Schaeffer after first hardening the body in solution of formaldehyd. This disclosed the condition that is well shown in the accompanying illustration. An abscess measuring 3 cm. in length and width was found in the retropharyngeal space. It extended forward 2 cm. to the uvula and epiglottis, completely obstructing the pharynx and larynx. The abscess cavity was much shrunken by the action of the formaldehyd and in the living state was, doubtless, much larger. An examination of the body gave no definite clue as to the cause of the abscess. A prominent pharyngeal tonsil was present.

The development and course of retropharyngeal abscess is better understood if one keeps in view the the different layers of tissue that intervene between the pharynx and the cervical vertebrae.

Dorsal to the mucous membrane of the pharynx is the pharyngeal aponeurosis, a loosely attached fascia permitting of free movement and free swelling. This fascia is followed by the constrictor muscles, which are in turn covered by the thin buccopharyngeal fascia. This fascia is but loosely attached by areolar tissue to the strong prevertebral fascia which follows. The loose areolar tissue space—the retropharyngeal space—permits of free expansion. The strong prevertebral fascia covers the prevertebral muscles which overlie the cervical vertebrae. It is evident, when pus forms dorsal to the prevertebral fascia and is confined there, that extension must be limited, whereas, if present ventral to the fascia, in the loose retropharyngeal fascial space, the freest extension is possible.

The source of infection leading to abscesses posterior to the pharynx are usually classified under four headings:

1. Those due to caries of the upper cervical vertebrae, usually of tuberculous origin. Such an abscess, being dorsal to the prevertebral fascia, is very

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* From the Daniel Baugh Institute of Anatomy, Jefferson Medical College.

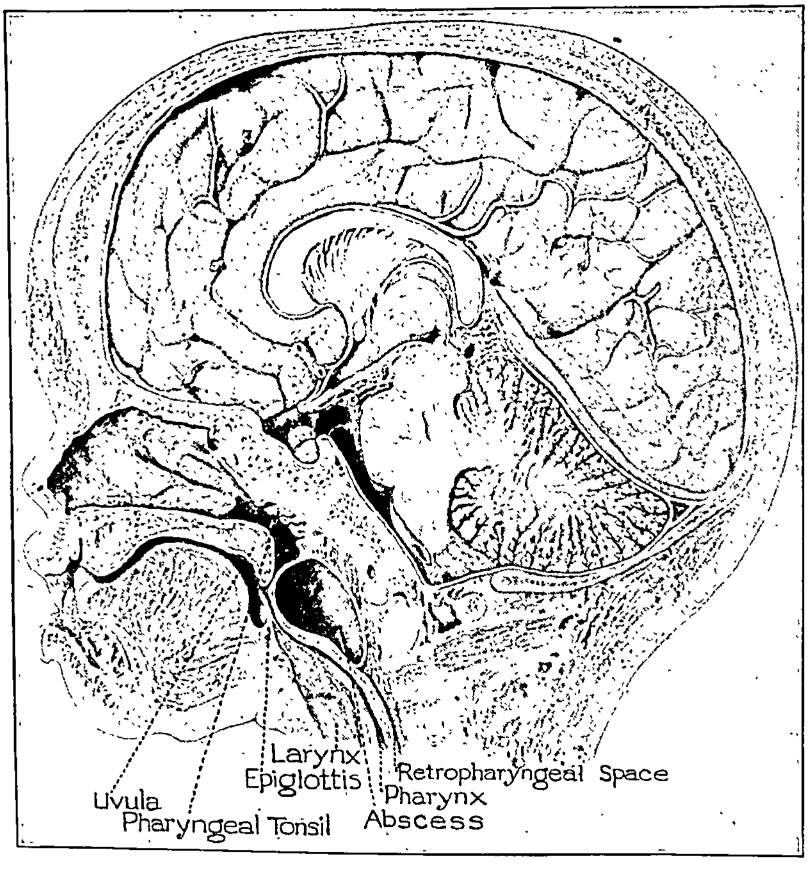
apt to burrow laterally and appear as a tumor in the neck, dorsal to the sternocleidomastoid muscle where it should be opened under the strictest asepsis to prevent a mixed infection. If unopened, it may follow the brachial plexus into the axilla. Regardless of the prevertebral fascia, it may, however, burrow forward in the midline of the pharynx.

2. Those due to an otitis media. The pus probably burrows downward in the upper part of the eustachian tube along the tensor tympani muscle to terminate behind the prevertebral fascia. It tends to point in the same direction as infection from cervical vertebral caries.

3. Those due to an extension inward of a carotid abscess.

4. Those due to infection of the lymph nodes of the retropharyngeal space. These nodes are one or two in number on either side of the midline opposite the lateral masses of the atlas. They receive lymphatics from the nasopharynx, eustachian tubes, nasal fossae and accessory sinuses.

The abscess accordingly lies in front of the prevertebral fascia and usually, as in the case reported, points into the pharynx. If not opened by the surgeon, it causes dyspnea, dysphagia and dysphonia and probably death from suffocation, or the abscess may rupture and the pus be swallowed or drawn into the larynx. In the latter case death from suffocation or septic pneumonia may result. As the retropharyngeal space is composed of loose connective tissue extending downward behind the esophagus to the posterior mediastinum, failure of evacuation permits the abscess to follow a course of slight resistance downward into the thorax. Abscesses in the pharynx should be opened in the midline, while the baby's head is held sufficiently low to allow the contents to flow out of the mouth.



Retropharyngeal abscess.

Food Waste in Meat Production.—It may be roughly estimated that about 24 per cent. of the energy of grain is recovered for human consumption in pork, about 18 per cent. in milk and only about 3.5 per cent. in beef and mutton. In other words, the farmer who feeds bread grains to his stock is burning up 75 to 97 per cent. of them in order to produce for us a small residue of roast pig, and so is diminishing the total stock of human food.—Armsby, quoted by Lusk, Food in War Time.

RATIONAL PREOPERATIVE TREATMENT WITH SPECIAL REFERENCE TO PURGATION

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The routine preoperative treatment naturally shows wide variation in the different hospitals. The type of diet, the amount and kind of fluids given, the preparation of the operative field, and the hypodermic medication are subjects representing the greatest divergence of opinion. On only one point are nearly all surgeons in accord, namely, the necessity for the administration of some kind of cathartic the night before a surgical procedure. Viewed collectively, it seems to matter little what type of intestinal evacuant is prescribed, whether it be a mild laxative, a more efficient cathartic, or a purgative.

This practice is apparently the survival of an old principle, taught when the main treatment for all diseases was purgation, frequently repeated. It was held that the intestinal contents were toxic, and in fact it was even asserted that the disease or its products could thus be entirely eliminated. At present, purgatives are seldom given by internists. The mild cathartics and enemas have replaced the more drastic drugs, the aim being to obtain regular bowel movements of normal consistency.

Many surgeons in their postoperative treatment have likewise substituted enemas or mild laxatives for the more violent cathartics. The majority of surgeons, however, do not follow the same principle in their preoperative medication. It has seemed easier to change the postoperative treatment, which of necessity varies much, than to change the routine preoperative treatment, which remains the same for nearly all cases.

The object of this paper is to point out the advantages to be gained by changing the ordinary preoperative treatment in favor of the use of simple enemas. Like nearly all surgical procedures, no absolutely hard and fast rules should be followed. There are undoubtedly cases in which the administration of a mild cathartic before an operation may be of advantage; on the other hand, however, I consider such cases the exception instead of the rule.

Every surgeon has noticed that the emergency patient who comes to the hospital in need of immediate operation has as good a postoperative recovery and as uneventful a convalescence as the patient who is, so-called, properly prepared. It makes little difference whether it is a case of acute appendicitis or a crushed limb requiring immediate amputation. The surgeon proceeds with the operation without thought that the patient undoubtedly has fecal material in the small intestine. Again, in such cases as strangulated hernia, intestinal perforations from traumatic or other causes, and acute intestinal obstructions, in which no surgeon would think of giving more than an enema, the patient's progress is as satisfactory after the operation as that of the patient who has had a similar operation after the administration of a preliminary cathartic. It is evident, therefore, if we reason from the experience of emergency surgery, that preoperative catharsis is not necessary and can be eliminated without any appreciable change in the well-being of the patient.

EFFECTS OF PREOPERATIVE EVACUATION

The advantages claimed for preoperative evacuation of the small and the large bowel by drug action are few. The elimination of intestinal products which might lead to putrefaction, the sterilization of the intestine by calomel, and the elimination of disease products are the usual claims advanced. Many surgeons, when asked why they order cathartics, simply reply that the patient is thereby put in a better position to withstand the operation. But does catharsis really do this? The elimination of intestinal products present twenty-four hours or less before operation does not prevent putrefaction, since waste products of the body are constantly passing into the intestine. Further residue after digestion of ordinary food is not prone to putrefaction, and this is the only material that can be definitely eliminated. The whole question of the absorption of toxic bodies from the lower part of the small inetstine and the large bowel is still unsettled. It was shown by Frazier and Peet,[1] however, that, in the dog at least, absorption of toxic products of intestinal putrefaction from a partially obstructed colon could not be demonstrated.

The attempt at sterilization by calomel and other drugs has been proved useless. Great numbers of organisms are, of course, carried out, but this process is not really beneficial since it tends to change the bacterial flora, usually in the direction of multiplying the fermentative organisms.

The elimination of disease products is, without question, a valuable and necessary procedure. It is, however, only in the exceptional case requiring operation that a disease exists whose products are eliminated by the intestine in sufficient quantity to warrant any hopes of real improvement by this means.

DISADVANTAGES OF CATHARSIS

The disadvantages that follow preoperative catharsis are numerous. The most important are psychic and physical weakness, the loss of sleep, the loss of body and intestinal fluids, the hypotonicity of the intestinal wall, and the change in the intestinal flora.

Practically every one has noted the depression, both physical and psychic, which many patients show after catharsis. This certainly is not conducive to rapid convalescence or even to an excellent operative condition. Many patients complain of the loss of sleep the night before their operations, caused by the discomfort in the abdomen or the frequent necessity to use the bed pan. Even the exertion necessitated by frequent bowel movements is a source of fatigue.

The loss of body and intestinal fluids by catharsis is a serious drain on the system, and occurs, no matter what type of drug is used. The patient is thirsty long before the operation because his body is in need of the fluids carried out by the purge. The widespread use of the coffee and whisky enema, the "Murphy drip," the subcutaneous saline infusion, and the intravenous administration of fluids are all indications of how thorough is the understanding that the body needs fluids in abundance immediately after an operation. Yet, by the catharsis, we carry away more fluid than will be absorbed by the rectum and colon in several hours. The lower bowel is also more sensitive to irritation after purgation and therefore is not so tolerant of the rectal tube and the saline or tap water. Therefore the patient prepared in the orthodox manner, who is in need of fluids because of loss of blood or other causes, is at a double disadvantage, first, from the loss of fluids before operation, and second, from the inability of his colon to tolerate the easiest and safest methods of their administration. The postoperative thirst after such preparation is naturally greater.

The natural peristalsis of the small intestine is stimulated by the presence of semisolid material within its lumen. The loss of this stimulation, the irritation of the drug, the depletion of fluids and secretions of the intestine, and the increased peristalsis lead to hypotonicity of the intestinal wall. This results in gas distention and postoperative ileus, and is undoubtedly a contributing factor to the more or less prolonged nausea and vomiting so common after operations. The change in the bacterial flora resulting in a preponderance of the fermentative organisms works hand in hand with the hypotonicity in producing the abdominal distress, the severe gas pains, and even interference with respiration and heart action by means of abdominal distention.

ADVANTAGES OF SIMPLE ENEMAS

The clinical evidence in favor of the proposed change in preoperative treatment is quite conclusive. For the past six years there has been a careful comparison of patients receiving catharsis before operation and those receiving only simple enemas. The results have been decidedly in favor of simple enemas as a means of emptying the bowel. Postoperative thirst, nausea and vomiting, abdominal distress and gas pains occur much less frequently. The patients are in better mental and physical condition to withstand the operation and are in far better condition afterward.

Recently additional evidence supporting the theoretical and clinical findings in relation to catharsis has been brought out by Alvarez and Taylor.[2] Their experiments demonstrate that after catharsis the bowel is filled with gas and fluid, the mesenteric circulation is disturbed, the rhythm of the peristalsis is upset, portions of the intestine beat irregularly and poorly, the response to drugs is feeble, and the muscle becomes fatigued rapidly. They declare that the unevenness in the gradient of muscular forces must interfere with the steady progress of food through the intestine, and probably favors the production of colic and gas pains. The conclusion drawn is that it is not wise to purge shortly before an operation in which the bowel must stand the insults of drying, handling, cutting and sewing.

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[1] Frazier, C. H., and Peet, M. M.: Experimental Colonic Stasis, Ann. Surg., 1916, **63**, 729-731.

[2] Alvarez, W. C., and Taylor, F. B.: Changes in Rhythmicity, Irritability and Tone in the Purged Intestine, Jour. Pharmacol. and Exper. Therap., 1917, **10**, 365-377.

The weight of theoretical, experimental and clinical evidence is therefore in favor of the abolishment of purgation as a routine preoperative procedure.

CONCLUSIONS

Preoperative catharsis has little to recommend it. The disadvantages are: physical and psychic weakness; loss of sleep; loss of body and intestinal fluids; hypotonicity of the intestinal wall; the change in the bacterial flora of the intestine, and the irritability of the rectum and lower colon.

The patient not subjected to preoperative catharsis is not as prone to suffer from thirst, nausea and vomiting, abdominal distention and gas pains.

Note.—Since this paper was submitted for publication, a further paper by Alvarez[3] has appeared.

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LOOSE BODIES IN THE ELBOW JOINT *

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It is not generally recognized that mechanical derangement of the elbow joint is occasionally produced by the presence of osteocartilaginous loose bodies. A locking or impediment to motion in the elbow does not cause the same degree of inconvenience and suffering that a like condition would cause in the knee joint. This fact, and the infrequency with which loose bodies occur in the elbow as compared with the knee, account for the general lack of knowledge concerning their presence in the elbow.

Loose bodies in the elbow joint may be classified into two groups: 1. Pieces of joint surfaces that have been knocked off in fractures. Such fragments are definitely due to trauma; they are often quite large and have to be removed in order that function may be reestablished. The condition will not be considered in this article. 2. Bodies not definitely due to trauma, found in numbers varying from one to twenty or more.

During the last three years in the Mayo Clinic, twelve persons were examined who had loose bodies in the elbow joint; in the right elbow in nine, in the left in two, and in both elbows in one. All of these patients were males. Three patients were between 10 and 20 years of age; six were between 20 and 30; two were between 30 and 40, and one was between 40 and 50. Nine of the twelve were operated on. One loose body was removed in three instances; two were removed in two; three were removed in one; and twenty-one, thirty-one and sixty-five, respectively, were removed in three (Figs. 1 and 2).

We have been unable to find any common cause for the formation of these bodies. It is rarely possible at the time of operation sufficiently to expose the joint surface to permit of inspection of the synovial cavity. The surgeon, therefore, cannot determine whether the bodies come from the condylar surfaces, as has been demonstrated in cases of osteochondritis dissecans of the knee; from marginal osteophytic growths due to ostearthritis, or from the synovia, as in osteochondromatosis. Roentgenograms have not furnished evidence as to their origin, as they have done in some cases of osteochondritis dissecans of the knee joint. Ostearthritis of the hypertrophic type has been occasionally demonstrated, and may have been the etiologic factor in the production of the bodies.

Koenig[1] was unable to produce, experimentally, loose bodies in joints. He inclined to the belief that they are all due to a condition of the joint which he calls osteochondritis dissecans. Barth[2] believed that all loose bodies are due to trauma. Von Bergmann,[3] in speaking of loose bodies in the elbow, stated that in his opinion free bodies are referable to an injury, happening usually in youth. In many of our cases there was a history of injury in youth; in others there was no history of either old or recent trauma. Trauma cannot be accepted as the direct cause of these loose bodies; but that it is undoubtedly a factor in many cases cannot be denied. Bland Sutton[4] mentions the temporomandibular joint of the skate (*Raja laevia*) as a physiologic example of their presence. In this animal there is a recess communicating with the articular cavity and containing, usually, a collection of smooth, cartilaginous bodies. Rehn[5] has reported loose bodies in the elbow joint, but most articles on the subject in the literature refer to loose bodies in the knee joint. The number of loose bodies in joints varies greatly, depending, probably, on their mode of origin. They may occur in almost any joint. Many writers have not made it clear as to whether the bodies they describe are osteocartilaginous or fibrous. In

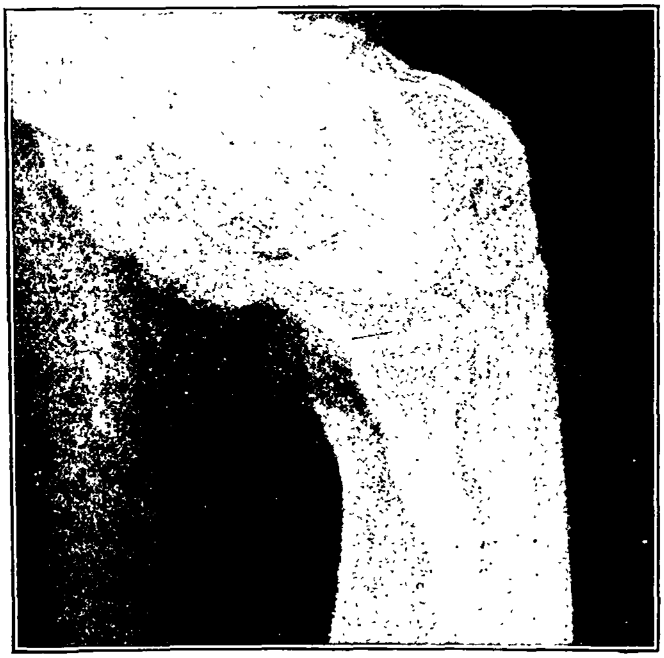

Fig. 1.—Thirty-one loose osteocartilaginous bodies in the left elbow joint.

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[3] Alvarez, W. C.: Surg., Gynec. and Obst., 1918, **26**, 651.

* From the Mayo Clinic.

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Koenig: Ueber freie Körper in den Gelenken, Deutsch. Ztschr. f. Chir., 1887-1888, **27**, 90-109.

[2] Barth, quoted by Smith, S. A.: Loose Bodies in the Knee Joint, Canad. Med. Assn. Jour., 1914, **4**, 209-215.

[3] Von Bergmann, Ernst: A System of Practical Surgery, New York, Lea & Febiger, 1904, **3**, 213.

[4] Sutton, J. B.: Tumors, Innocent and Malignant, London, Cassell & Co., 1901.

[5] Rehn, E.: Gelenkchondrome, Beitr. z. klin. Chir., 1911, **71**, 817-831.

the dissecting room, Abernethy[6] found fourteen loose bodies in the hip joint of an old woman. Berry,[7] at operation, removed 1,047 loose bodies, described as hyaline cartilage, from the knee joint of a woman aged 22 years. Marsh[8] removed thirty loose bodies from the cavity of a knee joint and five from the semimembranous bursa of a man aged 23 years. Most of the bodies in the latter case were detached, but several were still connected with the synovial fringes by slender pedicles. This was evidently a case of osteochondromatosis. Twenty years after, the man had not had a recurrence of symptoms, in spite of the fact that numerous small cartilaginous nodules were left hanging on the synovial membrane. In our series, thus far, there have been no true recurrences; however, sufficient time has not elapsed following operation to make us overconfident on this point. In some cases we could not remove all the bodies, and those remaining may later cause trouble. Shaw[9] has reported a case in which a loose body, on removal, was found to contain the point of a broken needle. It was thought that the needle, accidentally embedded in the subsynovial tissue and causing irritation, had led to the formation of the body which subsequently became detached.

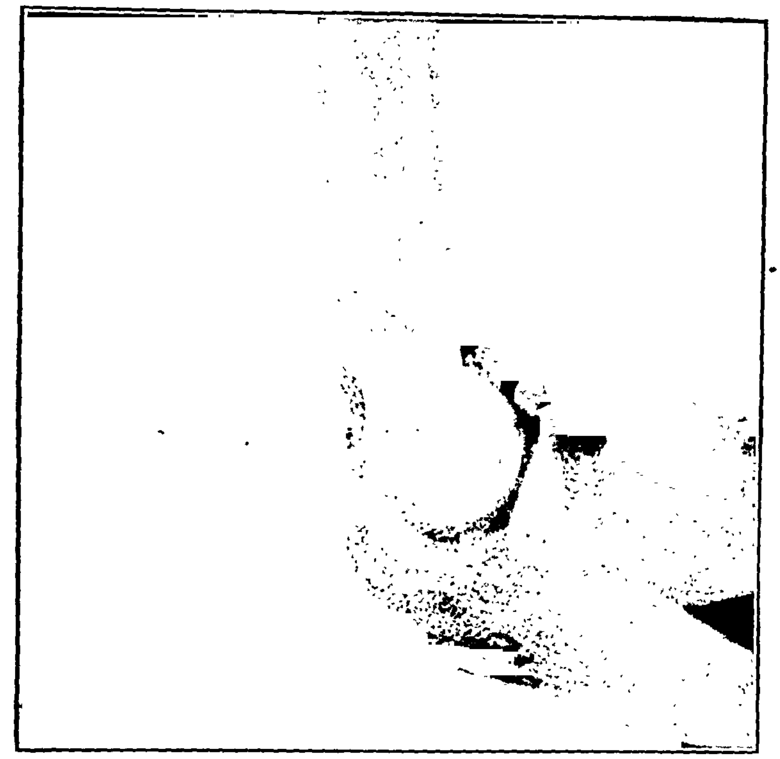

Fig. 2.—Three loose bodies lying in the anterior compartment of the elbow joint; one in the interarticular area.

The joint surfaces of the elbow are not subject to direct trauma, though indirect trauma, due to muscular violence, is at times undoubtedly inflicted. Some of our patients had had their first symptoms after unusual exertion, such as throwing a baseball; but that such action produced the loose body is doubtful. It is more probable that attention was at that time first drawn to the elbow by the locking or catching due to the body which was already there. In three of our cases an arthritis was present at the time of examination. Here again it is impossible to decide whether or not the arthritis, hypertrophic and lipping in character, was primary or secondary to the loose bodies, though the latter seems more probable since the ages of the patients were 44, 23 and 25 years, indicating that in two, at least, a primary monarticular hypertrophic arthritis is unlikely to have occurred. The oldest patient had no evidence of arthritis elsewhere in the body.

We know that in the knee joint occasionally the synovia takes on peculiar properties and tends to form multiple loose bodies (osteochondromatosis), and it may be that the same thing occurs in the synovia of the elbow joint; this was demonstrated in one of our cases. The patient, a man aged 26, had sixty-five loose bodies removed from the elbow joint (Fig. 3). The synovial sac was greatly distended and the synovia itself was pouched and pedunculated. Some of the tips of the pedicles were fibrous, and others were becoming cartilaginous. It was evident that these cartilaginous tips could easily drop off, wander about and, as the joint fluid provided their nourishment, grow to considerable size. It is very probable that the bodies may be formed in any one of the various ways mentioned, and that no one cause will explain their presence in all cases.

Syphilis was present in only one of our cases and was contracted two years after the onset of the symptoms in the elbow.

The loose bodies themselves are osteocartilaginous in structure. The outer layer is of cartilage, and the bone is scattered about irregularly as flakes in the remainder of the loose body. There is no distinct center of bone surrounded by cartilage.

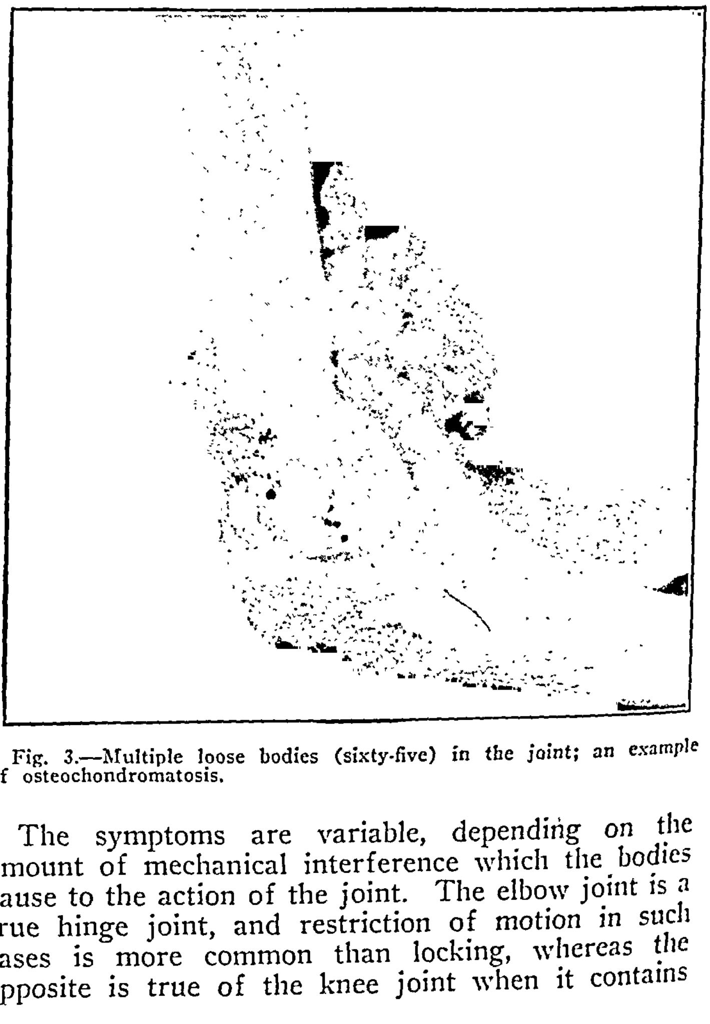

Fig. 3.—Multiple loose bodies (sixty-five) in the joint; an example of osteochondromatosis.

The symptoms are variable, depending on the amount of mechanical interference which the bodies cause to the action of the joint. The elbow joint is a true hinge joint, and restriction of motion in such cases is more common than locking, whereas the opposite is true of the knee joint when it contains loose bodies. Some of our patients complained of limitation of motion, a little catching, perhaps, but no distinct locking of the joint. Others had definite locking, released by manipulation and accompanied by severe pain. All had some limitation of motion. Occasionally the joint locks while the patient is asleep, and he is aroused by the pain.

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[6] Abernethy, quoted by Marsh, H., and Watson, C. G.: Diseases of the Joints and Spine, Chicago, Chicago Medical Book Company, 1910, p. 259.

[7] Berry, J.: Fifty Loose Bodies Removed from a Knee Joint, Tr. Path. Soc. London, 1891, **42**, 275-276; Multiple Loose Cartilages Removed from a Knee Joint, ibid., 1894, **45**, 138.

[8] Marsh, H., and Watson, C. G.: Diseases of the Joints and Spine, Chicago, Chicago Medical Book Company, 1910, p. 259.

[9] Shaw, A.: Pendulous Osteocartilaginous Body Excised from the Knee Joint, Having Embedded in Its Cartilaginous Part the Pointed End of a Needle, Tr. Path. Soc. London, 1855, **6**, 328-331.

The condition should be treated surgically. The character of the joint and the importance of the surrounding structures occasionally make it difficult to remove all the bodies. If they are considerable in number it will be found that the majority lie in front of, and to the inner side over the ulnar area. On the anterior aspect this is the safest approach to the joint.

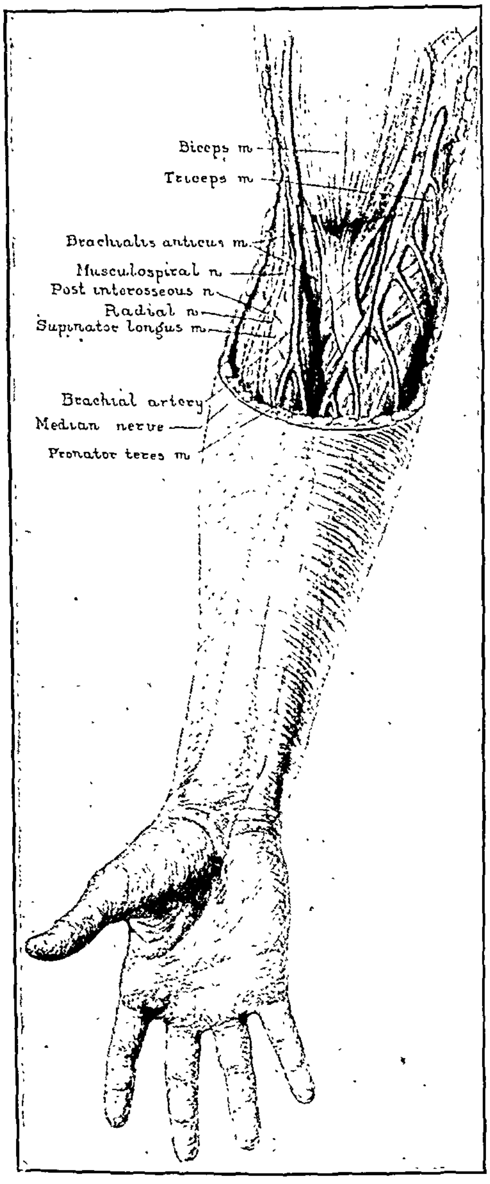

Fig. 4.—Two incisions (internal and external) for the removal of loose bodies from the anterior compartment of the elbow joint.

OPERATION

The incision is made to the inner side of the biceps tendon, and usually it is necessary to divide the median basilic veins (Fig. 4). The ulnar nerve is behind the condyle and well out of harm's way. The median nerve and the vessels are to the outer side. The incision is carried down, the pronator radii teres fibers are separated and, later, the brachialis anticus fibers are spread.

The joint capsule is exposed and opened. By flexing the elbow to about 45 degrees, a curved forceps may be introduced and the bodies forced out. If this procedure is not successful, the gloved finger may be introduced into the joint and the bodies palpated. Various maneuvers and manipulations may be used, such as palpating with the other hand while the opening into the joint is held apart, and pressing on the joint from the outside, thus forcing the bodies out through the opening in the capsule. If the bodies are posterior in the olecranon fossa, the incision should be made through the lower fibers of the triceps (Fig. 5). If the bodies to be removed are on the radial side, the incision is made to the outer side of the biceps tendon (Fig. 4). The fibers of the supinator longus must be divided, great care being taken not to injure the musculospiral, the posterior interosseous or the radial nerves. Any one of these incisions may suffice, or it may be necessary to employ two or even all three of them. Exceptional care must be taken to make the operation aseptic.

CONCLUSIONS

1. In my experience, loose bodies in the elbow joint have not been of rare occurrence.

2. The etiology is doubtful. Trauma is a factor but not the sole factor. The synovia may be solely responsible, such a condition being called osteochondromatosis.

3. If left in the joint, the tendency is for the bodies to increase in number; therefore, their removal is indicated, provided the patient's general condition is satisfactory.

ABSTRACT OF DISCUSSION

Dr. Willis C. Campbell, Memphis, Tenn.: I have never seen a typical loose body in the elbow joint. I had one instance of a large cartilaginous mass blocking the joint, an unattached enchondroma, the result of a trauma, but not demonstrable with the roentgen ray. I believe trauma to be by far the most frequent etiologic factor in the development of loose bodies in a joint. Ridlon recently reported cases of osteochondritis dissecans, in which loose bodies were thrown off from the articular surface, either from trauma or infarct (endarteritis). I operated on a physician, 30 years of age, who, at the age of 12, sustained a trauma that caused severe pain followed by locking of the knee joint. The symptoms suggested displacement of the internal semilunar cartilage, but on operation two loose bodies were found, with a corresponding cavity on the outer aspect of the inner condyle of the femur.

Dr. A. R. Colvin, St. Paul: I had a case of loose body in the elbow joint that was rather suggestive of osteochondritis dissecans. A year after removal of a loose body in the joint he returned with another loose body of about the same size, requiring removal. In the second instance the loose body was connected with one of the fasciculi of the external lateral ligament; and it might be argued that such a loose body was due to trauma. The young man played baseball and thought the trouble due to his efforts in this game; but it seems to me that it was due to osteochondritis dissecans, which is seen most frequently in the knee joint. As to loose bodies in the knee joint: A young man, with a history extending over six years, at first had only pain; later he had trouble in walking, frequent attacks of arthritis (rheumatism), extending over a period of six years. The roentgenogram disclosed a piece of bone about the size of a nickel, surrounded by a groove separating it from the parent bone, situated on the articular surface of the medial condyle of the femur. A diagnosis of osteochondritis dissecans was made. On opening the knee joint, the articular cartilage, of a dull and somewhat yellowish white color, in one area was intact, except for a slight fissure. Cutting around the entire circumference, I lifted out a piece of bone covered on the joint side with articular cartilage and on the superior surface by an irregular layer of fibrocartilage. Earlier writers ascribe the process to trauma; Ludloff suggests that numerous slight traumas transmitted through the attachment of the internal crucial ligament interfere with the blood supply of an area of bone supplied by a terminal artery and it finally becomes loosened.

Dr. Albert H. Freiberg, Cincinnati: A few years ago Dr. Woolley and I published the results of a study on the histologic character of material obtained from a particularly interesting case of this kind. Since then I have been able to observe a number of other cases of this same character. It is singular that we should need to look to trauma for an explanation of cases of this type, when in their history we are not able to associate trauma directly with the occurrence of symptoms of this character. To conclude that because a condition looks as if it had been caused by trauma, it must have been caused by trauma, when we are unable to establish a direct connection between the two, seems to me loose reasoning about a loose body. I had the opportunity to observe a case of loose body in the knee—not entirely loose—in a woman of about 50 years of age, who gave no history of trauma. In this case I am able to eliminate trauma altogether, but the histologic examination of this specimen, as in the case of others, disclosed the same condition that Woolley and I reported. In a certain number of these cases—not so often here, perhaps, as in Perthes' disease—the condition is present in both knees. This seems to me very significant in opposition to the theory of traumatic etiology.

Dr. Arthur Steindler, Iowa City, Iowa: I have seen a case of loose body in the ankle joint. The roentgen ray located the body on the upper anterior surface of the astragalus, exactly in the middle. It was removed easily through an anterior incision.

Dr. Leo Mayer, New York: I have had no experience with nontraumatic cases of the elbow; but it may be of interest from the point of operative technic to report a case of gunshot wound with foreign body in the elbow. A shell splinter, one-eighth inch long and a quarter inch thick, was situated between the olecranon process of the ulna and the humerus. It was exposed by an incision along the olecranon process. On opening the joint capsule, there was a discharge of slightly turbid fluid. By prying the bones apart it was possible to see the fragment in the depths and gradually pull it out with forceps. I wish to suggest the posterior route in the case of the ankle. Incise directly through the Achilles tendon, open the capsule from behind, and the joint is opened with practically no damage. If the capsule and the tendon are properly sutured, healing will be complete within three weeks after the operation.

Dr. Charles A. Parker, Chicago: I have seen one case of foreign body in the elbow joint. There were at least two bodies, as determined by palpation and roentgenogram. The patient would not let me operate. Regarding the formation of these bodies, we again have to recur to the most common place, the knee joint. I removed two from a patient 75 years of age. I did not go into the question of trauma; but she must have had it during her life. One body was free in the joint, and the other, free in a way. It was underneath the cartilage, on the outer side of the median condyle. With an instrument it could be shoved up and down, and the cartilage would move over this. The body was removed. On the margin of the joint were very distinct exostoses, apparently very much like the foreign bodies that I removed. I at first said that they were exostoses from ostearthritis. Then I reversed myself and called the condition osteochondritis dissecans. Possibly both conditions were present in the same joint.

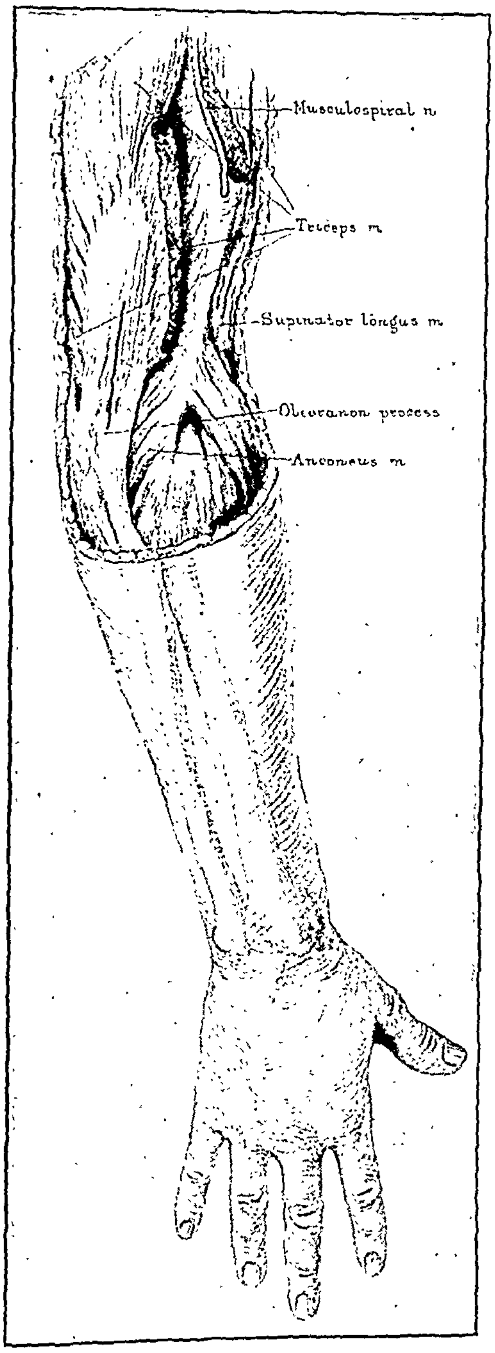

Fig. 5.—Incision for the removal of bodies from the olecranon fossa.

Dr. J. D. Griffith, Kansas City, Mo.: History is repeating itself. In 1868, when I was at college, we were taught that there was frequently an idiopathic condition in some cases. Then the pendulum swung the other way in regard to essential causes, and it was said that there was no inflammation without a focus of infection. Now we are getting back to idiopathic work again.

Dr. Melvin S. Henderson, Rochester, Minn.: The point that Dr. Colvin brought out about this condition in the knee is interesting. I have seen a case similar to the one he described, and I operated. The only difference was that the body removed was completely separated, and was formed by a fibrinous clot. There had been symptoms of locking; but previous to that the patient had had for four or five years indefinite aching and soreness in the joint, evidence that the condition had been coming on for a long time. The question is, Would that body have remained there if I had not removed it? I agree with Dr. Freiberg that trauma will not account for this condition. It is a definite clinical entity, a disease in which the cartilage becomes brittle and breaks off. Dr. Freiberg and Dr. Ridlon called attention to this, and I showed the little end artery coming down to the crucial ligament. That is one of the most frequent causes of block. But will that also account for these cases in the elbow? Another condition is described, termed osteochondromatosis, but I hardly thought that applicable to these cases. The synovia hangs down as a piece of tissue, and some fibers from the tip become cartilaginous and break off, forming a loose body. It is a reversion to type. The synovial membrane is formed, embryologically, from the same layer as the cartilage in joints. Dr. Mayer spoke of loose bodies lying there. I suppose that he had a difficult time in getting them out and sectioning along the olecranon. It could be done, and the olecranon sutured back; but in most cases we have succeeded in getting the loose bodies out by the other method.

Passing of the Basle Nomenclature.—The *Medical Press and Circular* says that the B. N. A. for teaching purposes in England is dead. The objections to it are manifold and it has produced chaos in English anatomic teaching, as pointed out by Prof. Arthur Keith. It it said that it was never promoted for the benefit of science, but was another of Germany's underhand methods of peaceful penetration for the purpose of impressing on the world the claim of that country as the leading exponent of scientific advancement. It has made more headway in America than in England, where it was never received with favor. Its death knell has been sounded in that country in an authoritative resolution adopted by the Anatomical Society of Great Britain and Ireland, which says "The committee, after consideration of the matter, unanimously reports that it sees no reason for departing from the use of the old nomenclature as the recognized medium of description for employment in anatomic textbooks and departments, or by medical men in general; on the other hand, it thinks there are very good reasons to be urged against the adoption of any other nomenclature for this purpose."

Military Medicine and Surgery

THE PROBLEM OF THE ARTIFICIAL ARM *

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The problem of the artificial arm presents many difficulties. Some of these have been overcome, and some apparently can be; but others from their very nature appear insurmountable. It seems wise, therefore, to get a clear idea of how much is actually required of an artificial arm and how far this demand can probably be met. The chief difficulty in devising an appliance capable of performing the work done by the lost hand is due to the high degree of differentiation of hand function. This is best appreciated by comparing the conditions in the upper and the lower extremities.

When a leg is lost, the chief requirement to be met is that of support. Standing and walking are relatively simple acts, and hence no complicated mechanism is required. It is necessary merely to supply an apparatus made to conform to the shape of the lost member and provided with some means for overcoming jar. Motion in the foot may be dispensed with, except for a simple joint near the ball; if provided, motion is practically always limited to a small amount of mechanically controlled flexion and extension of the ankle. With such an appliance the gait is often without appreciable defects.

An artificial arm of similar construction would serve little more than a cosmetic purpose. When an arm is lost, the chief requirement to be met is that of motion. The appliance must be so constructed as to make possible the performance of a large part of the work of the lost upper extremity; and since this work is almost entirely dependent on the efficiency of the hand, the value of the artificial arm may be estimated in terms of its hand function. The usefulness of the natural hand depends on rapidity and precision of movement, strength and the sense of touch. Strength is the only one of these for which it is possible to make adequate provision. Touch is gone. Rapidity and precision demand accurate control of a large number of movements, some of which depend on the pull of a single muscle, while others require the coordinated action of several muscles. Since only two pulls are usually practical in the artificial hand, it is evident that its usefulness will be necessarily restricted to grasping movements of simple character.

Orthopedic surgeons will recognize at once in this comparison the marked similarity to the limitations of operative procedures for infantile paralysis in the same regions. Where it is merely a question of securing stability, results are excellent; but restoration of the finer movements is quite a different matter.

THE AUXILIARY HAND

In attempting to answer the question of how much is actually required of an artificial arm, the one-armed and the armless must be considered separately. From what has just been said about the natural limitations placed on the artificial arm, it is obvious that the one-armed will use an artificial appliance for few and relatively simple acts. Except in the case of the occasional ambidextrous individual, most important acts are done almost entirely with one hand, the other being merely the helper, or, as it has been well called, the "auxiliary hand." If the right hand is lost, the left is trained to take over the function formerly performed by the right. In the one-armed, therefore, it becomes at the most merely a question of replacing the function of the auxiliary hand. Actually, however, it is even less than this, for, with increasing skill, it soon becomes possible to do many things with one hand which formerly required both. Indeed, this skill soon becomes so great that it is by no means uncommon for the one-armed to discard all apparatus.

A study of the functions of the auxiliary hand shows that for most occupations these are largely of three sorts: weighting, carrying and holding. There are a large number of acts in which its function is merely that of a weight or guide to prevent the object which is being worked on by the other hand from moving or from moving in the wrong direction, as in steadying the paper in writing or the board in sawing, or in steadying and helping to guide a plane. The carrying function is frequently used in order to relieve the other hand and in acts of this nature in which both hands are required, as in using a wheelbarrow. The holding of tools and other objects on which the other hand works constitutes a large part of the work of the auxiliary hand.

PRINCIPLES OF THE WORKING APPLIANCE

In providing for these three requirements, the first may be disregarded, as any type of artificial arm or the stump itself, if long enough, serves perfectly well as a weight. Carrying calls for some form of hook and holding for something in the nature of a clamp. This is borne out by practical experience, since the hook and the clamp have proved the most useful of all devices. While it is easy to provide a hook, the clamp offers more difficulty, and a satisfactory combination of the two has not as yet been devised. It does not seem possible to reproduce the movements of the fingers in an artificial hand so as to give sufficient grasping power for efficient work. Only when all attempt to reproduce the shape of the natural hand is given up and the effort made instead to construct a pure working tool can this be done. Hence there is now general agreement as to the necessity for a working appliance as well as for the so-called esthetic hand. Let us now consider briefly the principal points in the construction of these two types.

The number of different types of both the artificial hand and the working appliance now available is very large. Apparently almost every conceivable combination of mechanical principles has been used. It would seem wiser, therefore, to choose those existing types which more nearly meet the requirements which have just been discussed, and to attempt to perfect them, rather than to try to devise entirely new models.

Of the artificial hands, one of the simpler forms is so constructed that the fingers are fixed in flexion and the thumb is made to move through the action of the shoulder. This meets the indications already pointed out, the flexed fingers providing an admirable hook, and the movable thumb and fixed index finger supplying a clamp suitable for holding ordinary objects. Some improvements are possible in this model as it is ordinarily constructed. The thumb and fingers should be so formed as to make a more efficient pincer, so that small objects may be picked up more readily. This requires merely a slight change from the normal in the shape of the tips of the thumb and the opposing fingers. Further, by broadening the thumb a little and opposing it to both the first and second fingers, a firmer grip may be secured. In such a hand the grasping power of the thumb is secured either by spring tension or by positive tension obtained through the use of a locking device. If spring tension is used, the grasping power is equal only to the strength of the spring; this will suffice only for small objects. If large objects are to be held or if a firmer grip is needed, some form of locking device must be employed.

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* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

This type of artificial hand seems adapted to meet all the demands that are likely to be made on the auxiliary hand. It has also the very decided advantage of simplicity of construction. The type of hand in which the fingers are made to move may be more impressive to the purchaser, but it is hard to see in what particular it is more useful; its more complicated construction is certainly a disadvantage.

WORKING APPLIANCES

Working appliances vary all the way from a plain hook to a complicated universal tool. One, two or three immovable hooks have been used, either alone or with the addition of straps or other attachments. There are also many different combinations of the hook and clamp, the latter being operated either by the remaining hand in the case of the one-armed, or by the action of the shoulder. In many of these clamps the grasping power depends on spring tension; obviously, however, positive tension is particularly necessary in the working appliance, since it is essential that the grip on tools be a firm one. From a study of these different devices and of the demands made on the auxiliary arm, the most useful device would seem to be one resembling two fingers and a thumb, with the fingers fixed and the thumb moving between, and not against, them. When open, this device forms an excellent hook; when closed, all ordinary tools may be properly held. The difficulty, however, is to find a simple mechanism which will give a sufficiently firm grip. Thus far this has not been accomplished.

A single appliance, however efficient though it may be for ordinary occupations, does not entirely solve our problem. In many instances the adaptation of the appliance to the individual occupation is required. This phase of the subject has already received a good deal of study, and there is no doubt that much can be done in this way to fit men for specialized work.

The question of what type of working appliance to supply is bound up closely with the very fundamental one of how far the one-armed, or the armless, should attempt to engage in manual occupations on a competitive basis. Theoretically, and, I believe, practically, the one safe course is to place them only in those occupations in which they can be 100 per cent. efficient. Too much must not be expected of human nature, and it certainly is this to ask employers to face the constant deficit resulting from the employment of men able to earn only from 60 to 75 per cent. of their daily wages.

THE ARMLESS

The armless individual presents an entirely different problem. Instead of provision for the "few and relatively simple acts" required by the one-armed, the demand now is for provision for every act possible. Yet the means at our disposal are the same. With the necessary turning of the armless for his means of livelihood from a manual to a mental occupation, however, the problem is simplified and it again becomes possible to meet the need and make the individual independent. What has already been said about the working and the esthetic hands applies equally well to the armless. With both types it seems likely that a wider range of usefulness will be secured by attempting to adapt the appliance to the function of whichever hand it is intended to replace, rather than to supply two appliances of similar construction.

VALUE OF SIMPLE APPLIANCES AND THOROUGH TRAINING

In studying the problem of the artificial arm, one is struck again and again by the value of relatively simple appliances and the importance of thorough training in their use. With a simple wrist strap, an armless man is able to dress and feed himself and do most of his ordinary daily acts A strap over the shoulder, properly provided with a ring, is sufficient to enable the one-armed man to plow, use a wheelbarrow, spade and pitch hay. A single working appliance has enabled a man who suffered a disarticulation of the right shoulder and an amputation of the left forearm to be entirely independent. After all it is a matter of a little brains and much perseverance.

ABSTRACT OF DISCUSSION

Dr. John Ridlon, Chicago: Muirhead Little of London, who has had a unique experience in the hospital at Roehampton, presented a paper last year in which he said that they had had furnished 6,316 artificial limbs up to May 31, 1917. The whole problem of the artificial arm over there is confined to the simplest appliances, which are found to be the most useful. Of course, it is interesting to see mechanical appliances that can do almost anything that a live arm can do, and for some men they are certainly a great boon; but for the average man, who has only to do certain simple things, simple appliances are all that are required, and the men are better satisfied with them.

Dr. John P. Lord, Omaha, Neb.: Doctors know very little about artificial limbs. It is common for them to refer these patients to the artificial limb maker, and then dismiss them from consideration. That is wrong. In order to know how to make stumps, treat stumps and manage stumps, so as to get the best functional results, it is absolutely necessary for the surgeons to give attention to prostheses.

Dr. Arthur Steindler, Iowa City, Iowa: It is a necessity to take care of the position of the thumb in such a way that it shall not meet the first but the second finger of the hand. I understand that Dr. Silver has given thought to the same idea in the manufacture of the artificial hand, that the direction of the thumb shall not be one of adduction, but one of opposition.

Dr. S. C. Baldwin, Salt Lake City, Utah: One of the most important things in connection with this matter is the treatment of the stump. Dr. Silver has called attention to the necessity for keeping the muscles and tissues in good condition. This is important. Another thing to take into consideration is the hospitalization of the men coming back from the front. A great deal of that has to be overcome before they can have the limbs fitted, for this reason: We do not get a great many of them right away. They come after having been in from three to eight different hospitals, and having had different treatments at these different places; so that it is very necessary that something of that sort should be taken up at once and the men taught early about the use of these appliances and what they are going to be able to do with them. It is important to get these men ready for artificial limbs as early as possible.

Dr. David Silver, Pittsburgh, Pa.: I should like to emphasize our relation to the artificial limb manufacturer. Our relation to them should be one of the fullest cooperation. They have done an immense amount of work on the problem and have solved it in the most satisfactory way; it is now necessary for us to do our part, and this we have not yet done. By our cooperation with them we may be able to secure still further improvement.

ANESTHESIA AND ANTISEPTICS IN PLASTIC RESTORATION OF THE FACE AND MOUTH

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Plastic restoration of war wounds has made a new requirement of operative surgery. Sliding and turning flaps, bone transplants, secondary flaps, and even skin grafts open tissues that are not infected. The mouth, and particularly war wounds of the mouth, always contain infective organisms. Newly opened tissues should, if possible, be protected from infection in these operations.

The anesthetic devices in general use have in the main proved satisfactory. In addition to conductive and local anesthesia, the chief reliance for general anesthesia has been the ordinary mask and pumps and blowers of various types and combinations.

By none of them, however, may one secure even an approximately aseptic field for operations about the mouth. None of them protect the field from mouth secretions, and none of them permit the use of efficient antiseptics; for the reason that the respiratory tract is only relatively protected. An efficient antiseptic, like tincture of iodin, is highly irritative and dangerous in the larynx and trachea, and the exhaust pump—no matter how good—cannot be depended on absolutely to remove every drop of fluid from the pharynx. It has been the custom, consequently, to regard the mouth as a region that could not be sterilized, and to give the well vascularized tissues such credit for resistance to infection that aseptic operations were not only not possible but not necessary. In a measure the reasons might apply to the vagina or anal region. Before operating on these parts, thorough cleansing and sterilization of the surface with strong antiseptics is the rule, and operations without such precautions would not be considered standard procedure. The failure of surgeons to adopt the same method in oral operations is due to the inappropriate methods of anesthesia in general use. The same advantage may be obtained by providing a safe air way for respiration through which the anesthetic may be given and which will securely block the larynx from blood, or antiseptics strong enough to sterilize the surface, and which will, after the site of operation has been cleaned, protect it from reinfection by the mouth secretions.

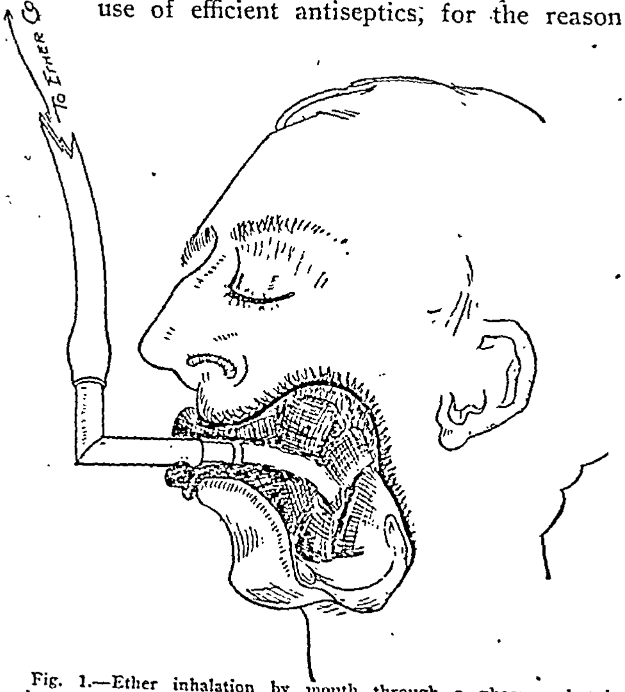

Fig. 1.—Ether inhalation by mouth through a pharyngeal tube and gauze packing.

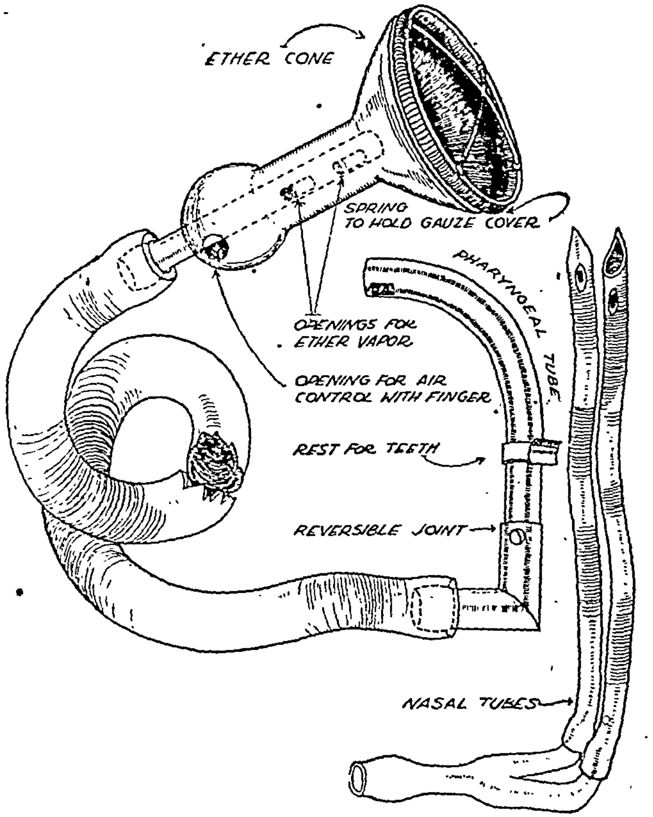

Fig. 2.—Anesthesia air ways for aseptic operations on the face and mouth.

Ether inhalation by mouth through a large pharyngeal tube and a coffer dam of gauze packing, when properly placed, is superior to any other method in a very large class of these cases. It furnishes that efficient block between the operative field and the respiratory tract so necessary for the performance of ideal operations in this region, and makes possible a degree of asepsis in the operation not possible by any other method (Fig. 1). It is now more than twelve years since I first adapted a curved metal tube and gauze pack to pharyngeal anesthesia by drop ether.[1]

The inhaler that I have devised for these operations is shown in Figure 2. It consists of a curved air way adapted to the mouth and pharynx. The open and slotted end should be so placed that it rests just above the larynx back of the epiglottis. It is provided with a movable joint as indicated. This permits the tube to be turned upward for operations involving the mouth and neck, and downward for the face and head. The nasal tubes are adapted from Crile, but are attached to a Y tube so curved that the stem may be firmly fixed over the nose by a strip of adhesive plaster, which insures stability and prevents obstruction in kinking. The pharyngeal tube has an inside diameter of half an inch, and the connecting rubber tube an inside diameter of three-fourths inch. A practical working length for this tube is 30 inches. The funnel is of spun metal. It is provided at the top with crossed curved wires to support the gauze cover, and is surrounded by a groove in which fits a coiled spring to hold the gauze in place. The inhalation tube is so arranged that it is not possible to pour liquid ether into it. The opening to admit air directly into the inhalation tube is placed in the bulb of the handle at a convenient place for finger control.

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[1] Rockey, A. E.: Med. Rec., New York, June, 1905.

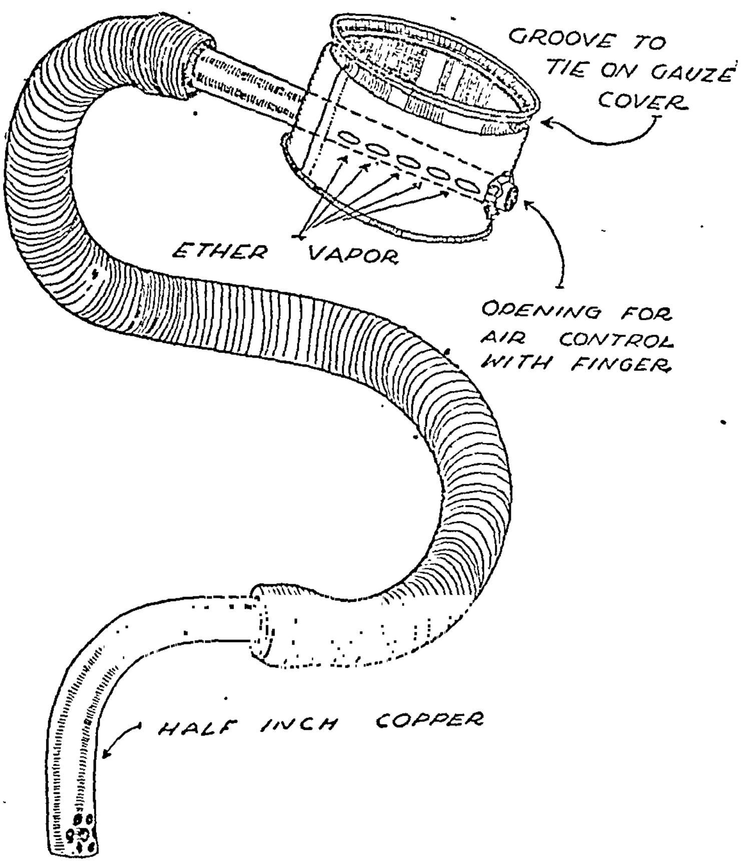
GROOVE TO TIE ON GAUZE COVER
ETHER VAPOR
OPENING FOR AIR CONTROL WITH FINGER
HALF INCH COPPER

Fig. 3.—Tin cup war model.

The demands of war surgery have so taxed the manufacturing resources of instrument makers that it is difficult and expensive at this time to obtain this well finished instrument. For this reason I have designed a war model shown in Figure 3, which is a most efficient substitute. It is made by removing the handle from a common tin cup, and running a groove around the top, on which to tie the gauze. The ether vapor way is made by constructing a half inch tin tube with five one-fourth inch holes punched into the lower side. This is passed through holes in opposite sides of the cup near the bottom, leaving one end projecting about one-eighth inch to serve as a finger air control, and the other end projecting about 2½ inches on the other side. This end may be expanded to three-fourths inch to fit the rubber tube. An air way may be made by bending a half inch soft copper tube, in the form of the original pharyngeal tube, or using the rubber tube alone. If a rubber tube is used, it must be protected from compression by a wooden block between the teeth or by a mouth gag. A Connell or other solid air way, such as is used by anesthetists, is a very suitable substitute. The large size of the tubes gives free movement to the air or other vapor current, and provides also a moderate volume of rebreathed ether and air.

Year by year, as experience has accumulated, my satisfaction with the method has increased. Success may be attained only by minute attention to details. The extension of the respiratory tract across the operative field from the larynx to the ether cone requires first proper adjustment.

A sufficient preliminary hypodermic of morphin and atropin should be given one hour before ether is to be administered. Complete third stage anesthesia must then be produced with the ordinary mask. The pharyngeal tube is then introduced, or in the comparatively few, in which deeper access to the mouth is required, the nasal tubes are placed. The posterior part of the mouth is then well packed with gauze. Much depends on the thoroughness and care with which this is done. The gauze pack forms the necessary dam of protection, both for the respiratory tract and for the field of operation. The inhalation tubes, either pharyngeal or nasal, may be further held in place by an adhesive strip around or over, and then attached to the forehead or face as the character of the operation permits. If this is carefully done, a satisfactory anesthesia may be maintained without interference.

It is essential that the ether be given by some one competent to maintain safely such a degree of anesthesia as will prevent any attempt at vomiting, which might clog or displace the tube, and break the asepsis of the operating field.

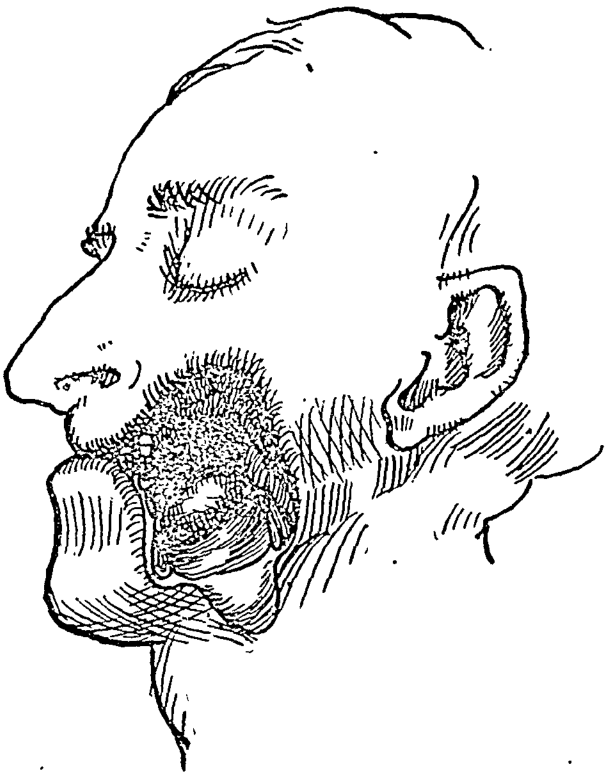

Fig. 4.—A war wound calling for a reconstructive operation (after Blair, V. P.: Surgery and Diseases of the Mouth and Jaws, St. Louis, C. V. Mosby Company, 1917).

These requirements, while not difficult of accomplishment, demand careful attention; but the result is certainly worth while. We may expect safety in anesthesia, facility in operation, and a degree of protection from infection that cannot be obtained by any other method.

In safety the supremacy of drop ether in many thousands of cases stands unchallenged. The inhaler here shown gives drop ether from what is practically an open mask, as the finger of the anesthetist at all times gives an instant touch control to the air admission or admixture. This is by no means true of an ordinary funnel.

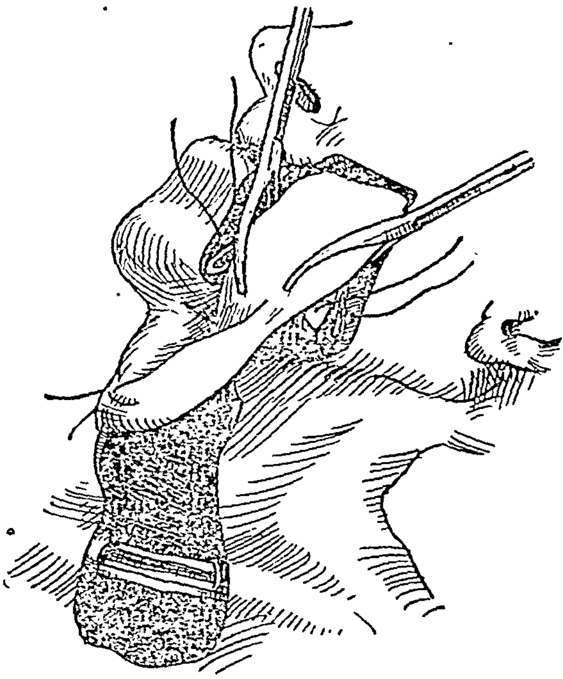

Fig. 5.—Operation proposed for condition illustrated in Figure 4 (after Blair).

The character of the respiration, which is the great safety indicator in any narcosis, is at all times apparent to the anesthetist by the sound of conduction in the tube.

ASEPSIS

When this method was first used the principal idea was to obtain a satisfactory anesthesia in these operations. The gauze pack in the mouth soon demonstrated the possibility of securing a degree of asepsis not possible without it.

A necessary preliminary is a careful cleaning of the mouth by a dental surgeon. Tartar should be scraped from the roots, and decayed, loose and abscessed teeth should be extracted, as should teeth within or about the diseased area. The greatest use for asepsis in these operations will be found in the reconstructive plastics that are required by war wounds of the face and jaw.

Take, as an example, the condition illustrated in Figure 4, and the proposed operation in Figure 5. It will be admitted without argument that asepsis is of great importance in the success of any plastic procedure, but particularly when bone transplant, such as is here proposed, is required. If this operation is done under any ordinary procedure of anesthesia now in use, infection cannot be avoided. After preparing the patient as described, let us introduce the pharyngeal tube of the inhaler as shown in Figure 1. The gauze pack is then carefully placed, and we may proceed with the cleansing and sterilization of the operative field exactly as in any other part of the body. The operation may be then finished without fear of contaminating large raw surfaces.

After the wound is closed the edges soon have an efficient protection in the film of blood clot between the edges, and primary healing may proceed without the delay and danger of suppuration and sepsis.

Figures 1, 4 and 5 are shown as examples of reconstructive operations that war wounds of the face will make necessary. The introduction of an efficient method of sterilization will enable the operator to avoid the deformities made more difficult of correction by the excess of scar tissue, so common after long suppuration. He may proceed early with the reconstructive work, treating wounds of this region by the necessary excisions and plastics in the same way that experience has shown most advisable in other parts of the body.

THE WORK OF THE TRAINING CAMP AT FORT RILEY *

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After one year of war, it is not necessary to show the reasons for the establishment of training camps for the Medical Department. The need for such training camps was well understood in the Surgeon-General's Office in the beginning, and steps were at once taken which resulted in the formation of three training camps, of which the Fort Riley camp is one.

From its inception, it was thought that the proper principle to go on was to make medical officers 100 per cent. military men, and as a result it was considered that the value of their professional ability would be increased materially and that they would be of more value to our government in whatever position they were placed. There has been nothing in the course of months of experience to disabuse our minds of that primary conclusion. The officers leaving these camps after completing their courses have taken stand second to none, and have been so efficient that time and again high officers of both the line and the staff have stated that those men who have had this training have given services absolutely satisfactory and far superior to men of equal ability who have gone direct from civil life to the divisions and hospitals.

In the beginning, the course as outlined was, as has been intimated, distinctly military with, of course, a considerable amount of professional instruction along medicomilitary lines. The keynote of the basic course has always been discipline, and every effort was made to perfect the discipline of the medical officers who were assigned to the camp. This discipline has nothing of a servile character, but it was distinctly taught and impressed on the physician from his arrival that in doing any work with an army in the field, the prompt and willing obedience to those in authority was not only called for by regulations, but was also an absolute essential to the proper performance of his duties.

Furthermore, it is well understood that the physical condition of a soldier today, whether in the line or in

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the Medical Department, must be as perfect as it can be made. The demand on the strength and the endurance of every one in the active theaters of this war has been stupendous, and so a carefully thought out plan for the physical instruction of the new medical officer was started immediately on his arrival. This physical instruction gets progressively more strenuous, and the results have shown that the officer leaving the camp after a three months' intensive course is physically capable of performing his duties and can stand up to the terrific exertion that is necessary.

The medical officer in all his work in the Army comes in very close contact with the enlisted man; and unless he understands the point of view of the enlisted man, he is incapable of handling his work as satisfactorily as the government requires him to handle it. Therefore, at this training camp, he is put in the position of the enlisted man by being accommodated in barracks, placed in a company in which his rank, whether he is a lieutenant, captain or major, is not considered, and where he can see plainly placed before him the reasons for all of the numerous regulations put forth for the governing of the armies in the field.

The basic course is continued under the principles outlined above for three months, and in that time the officer, in addition to his training, discipline and physical development, receives instruction in Army regulations, the manual of the Medical Department, and all of the medicomilitary work that a medical officer should know. The last half of the course is taken up with actual field instruction with regimental detachments, etc., giving the officer maneuvers and field services in which he takes an active part. The intention is not to perfect the medical officer in the duties of his office in the time allotted, but to give him a ground work on which can be built the instruction and experience that he receives when he leaves the camp and takes up his duties with a division or hospital. He is more capable of quickly adapting himself to the conditions as he finds them and of giving his very best work to the country.

During the first months of the existence of this camp, many men were sent out to the different divisions and hospitals, and the results were good. It was seen early, however, that something more than the strictly military instruction could be instituted with profit to all concerned. This conclusion was arrived at early, and efforts were made to impress the authorities in Washington with the importance of establishing schools at this training camp for the professional instruction of medical officers. Not that it was considered necessary to give the physician from civil life a general medical education; we knew he had that, and in most cases this education was of a first-class character. But certain special branches of medicine require more attention in military work than in civil life. Of these, receiving the first consideration from that standpoint, were general surgery, internal medicine, roentgenology and orthopedics. In November of last year, it had become so impressed on the heads of those departments in the Surgeon-General's Office that this work could be done most successfully at the training camps that it was so ordered, and separate schools were established at the camp for this instruction. An instructor force composed of some of the most prominent men in those lines in the country was provided, and by using the clinical material always present at the base hospital at Fort Riley, instruction of a very high character was given, and the men turned out from these courses were as well trained as could possibly be expected from the time allowed. And it must be emphasized that these officers, by being at the camp and receiving a certain amount of the basic instruction as well as the professional side, were as well drilled in their military duties as in their professional specialties.

In the Army, the preventive side of medicine receives more attention, and properly so, than the curative side. This, unfortunately, is opposed to the principle underlying the government of the civil communities and, therefore, well trained sanitarians and epidemiologists are few in civil life. This necessitated the instruction of bright, well balanced men in such lines, so as an important adjunct to the training camp activities were established special schools for sanitation and epidemiology. These schools were under the direction of trained men in those specialties, and the medical officer who was selected to take up this work was given not only didactic instruction, but also a large amount of practical work in the way of sanitary inspection, control of epidemic diseases and the construction of sanitary appliances. For this instruction, we have at our door the large cantonment at Camp Funston in which our sanitary inspectors in training were given a free hand; and a great many of the problems of the cantonment, many of which were large, were handled entirely by these departments in our camp. The camp itself, from the standpoint of sanitation and epidemiology, was handled by those departments, and the results in the way of communicable diseases show what should be and could be accomplished by the Medical Department if they had a free hand. From the beginning, the noneffective rate at Camp Funston —on the same reservation—was 20 or more per thousand larger that at the training camp, and whereas we had a comparatively small number of cases of pneumonia during the last winter, Camp Funston had several times the number in proportion to the size.

Attached to the department of sanitation at the camp is a sanitary laboratory in which not only is the medical officer in training enabled to study, under practical demonstration, the sanitary appliances used by the Army in the field, but also constant experimentation with new apparatus is being made.

The sanitary laboratory, though a distinctive institution, is not the only department in this camp in which practical instruction is given. The practical method is carried out in every department, and as far as possible actual demonstration of the methods of the Army and of the material of the Medical Department units, with their practical application, is given in every department, the effort being always to subordinate, as much as possible, the didactic to the practical method of teaching.

If the training of the officer was carried out at a camp distinct from that used for the training of the enlisted men, the officer would not have any idea, or a very imperfect idea, of the handling of the enlisted force. Therefore, as a part of this training camp, the enlisted men of the Medical Department are trained both generally and in special organizations, such as ambulance companies, field hospitals, evacuation hospitals and base hospitals. The officer in training comes in close contact with these units, he is detailed for service with such units, and finally at the end of his training, if we are able to keep him for his full three months, a great many of them are assigned to organizations here at the camp for permanent duty to go overseas with these organizations.

The results have been excellent. Individual officers have been sent all over the country for duty with divisions, base hospitals, depots, etc., and as a rule they have been successful and you will find our graduates holding the most responsible positions in the Medical Department, both here and abroad.

I appreciate that there has been in times past a feeling among certain members of the profession that the training camp was not necessary or proper. But one has only to interview the hundreds and thousands of officers who have passed through these camps to appreciate the strong feeling that the camp was not only worth while, but a decidedly essential part in the organization of our Army. The *esprit de corps* engendered is such that the officer going out into the world, so to speak, though feeling strongly his duty toward the country, his feeling toward the camp is so marked that he hesitates to do anything that would bring the least discredit on the insruction received here. This attitude is expressed most clearly in an article written by a reserve officer at the camp for the Year Book:

> It is a great game and we love it. Future peoples may see a greater, but none should miss his share in this. 'Varsity, scrub or substitute, we have been ready and willing to carry the ball or coach the players. Oh, yes, there has been adverse criticism; castles of gloom have been erected, only to be razed by intelligent accomplishment. Let none conclude there may have been any underestimation of the mammoth task allotted. We know that thousands of our strongest and best manhood must unflinchingly face engines of mutilation and destruction, so effective and so terrible that one can well conceive diabolical ingenuity in their construction. The formation of a medical department adequately to care for so immense an army as is necessary might well stagger the most capable and efficient officers and students of the art of war. But could all see the well formulated plans; the carefully drawn calculations; the many times threshed over methods; the massing of resources; the grasping of benefits from allied experience, then would they realize that the Medical Department is playing the game, hitting the line, and advancing the ball. Adverse criticism, yes, from outsiders, slackers and failures. It is no disgrace to enter the game and fail; the disgrace lies in not entering at all, or, having entered, in blaming the game for the failure. The humiliating part, the discouraging part, the pitiful part of it all is that one can enter one of these camps; take the training; be thrown in contact with this splendid spirit of patriotic devotion and sacrifice, and yet never comprehend nor grasp the soul of the reason why the stupendous effort is made. He has lost—no, he has never known, the divine inspiration of the magnificent sacrifice.

Birth and Death Registration.—Hawaii has recently been included in the registration area for deaths, which now comprises twenty-seven states, forty-three cities in other states, the District of Columbia and the territory of Hawaii, covering 73 per cent. of the total population of the United States and Hawaii. The collection of death statistics was begun by the census bureau in 1902, and the first report covered the years 1900 to 1904. Reports have been published yearly since. Birth registration is not as complete as that of deaths, only nineteen states so far having come within the requirements of birth registration, containing 51 per cent. of the total population as against 31 per cent. two years ago, when the collection of birth statistics was begun. Since the recent military registration, the importance of birth registration has become more apparent, but until the matter is placed under federal control or supervision, complete registration of births and deaths will not be secured. Up to the present, it has depended on state or municipal legislation and enforcement.

SYSTEM FOR RAPID BUT THOROUGH EXAMINATION FOR PULMONARY TUBERCULOSIS [*]

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WASHINGTON, D. C.

Standardization of all war measures makes for efficiency, and the elimination of every unnecessary motion, be it in making a piece of machinery or in examining a recruit for tuberculosis, helps win the war. As a rule, in the examination of the lungs, from five to ten minutes is wasted because the examiner has given no thought to the development of a system calculated to save time, while yet being thorough.

If the routine here given be followed, examinations may be made rapidly, and yet with a considerable degree of accuracy.

The subject sits on a stool and squarely faces the light, erect but with shoulders relaxed.

1. The examiner, standing in front, notes the configuration of the chest, especially retractions above or below the clavicles, and the motion with quiet breathing; also the location of the cardiac impulse.

2. The examiner, standing behind, looking downward on the anterior aspect of the chest, notes retraction above of below the clavicles, and the motion with (*a*) quiet and (*b*) deep breathing, noting lagging and limited expansion.

3. The examiner, standing behind (close up against subject), by palpation tests the motion ("lifting power") of the thorax by placing the hands on the front of the chest. Then with hands in the same position but with much lighter pressure, he observes the tactile fremitus.

4. The examiner, standing in the same position, divides the supraclavicular spaces into three segments by two anteroposterior lines. The corresponding segments are then percussed with a very light stroke. (To bring out slight dulness, the subject faces into a corner of the room.)

5. The examiner sits squarely in front of the subject. One may from this position again test the motion of the upper part of the chest. By percussion determine the lower border of the lungs at the anterior axillary line, on quiet breathing and deep inspiration. Then percuss upward, comparing corresponding areas, including the axillae and direct percussion of the clavicle.

6. The heart is auscultated, especially for mitral stenosis, which may cause symptoms suggestive of tuberculosis.

7. The breath sounds (on moderately full, slightly rapid but quiet respiration) are noted from below upward, four areas on each side, the last being above the clavicles.

8. Without changing the position of the stethoscope from the last position of No. 7, the examiner begins auscultation for râles (forced expiration and cough), searching with especial care the inner and outer parts of the supraclavicular fossae and the upper three interspaces and the apex of the axillae, but disregarding the crepitations in the lower axilla and over the sternum, which come late in inspiration and disappear with deep breathng (marginal râles).

9. The subject is turned with his back toward the examiner, who observes the fremitus, determines the expansion at the base, and percusses the lungs from below upward.

10. The breath sounds are noted from below upward, four areas on each side, the last being the supraspinous fossae.

11. Without changing the position of the stethoscope from the last position of No. 10, the examiner auscults downward for râles (expiration and cough), examining with special care

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[*] A description of the system referred to by Stoll, H. F.: Simplified Rules for Tuberculosis Examinations, The Journal A. M. A., March 2, 1918, p. 605.

the apexes and region adjacent to the second and third thoracic vertebrae. Do not neglect to listen over the scapula.

12. When rapidity is necessary, special study of the vocal resonance and the whispered voice need not be made, unless percussion or breath sounds reveal an abnormality.

13. When great rapidity must be practiced, inspection and auscultation with cough (1, 2, 8, 11) give the most information.

14. At least half the time taken by the examination should always be spent in the search for râles (expiration and cough).

TRENCH FEVER*

A REPORT OF CLINICAL OBSERVATIONS AND RESEARCH AS TO THE ETIOLOGY, PATHOLOGY, PROPHYLAXIS AND TREATMENT OF TRENCH FEVER AMONG TROOPS

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HAMPSTEAD, ENGLAND

(Concluded from page 113)

Experimental Work

We now turn to our experimental work, undertaken, first, to determine the mode of transmission of trench fever.

MODE OF TRANSMISSION

That the disease was transmissible from man to man was shown by McNee and his fellow workers when they passed on the infection by means of the syringe, injecting the blood from a trench fever patient into a healthy man. We have confirmed this observation on two occasions. The incubation period in the two cases varied considerably, apparently with the stage of the disease at which the patient had arrived from whom the infected blood was obtained.

McNee further adduced evidence that the infective agent was to be found in the blood corpuscles themselves, and that, even when the blood was laked, the virus would not pass through a filter. Our attempts to confirm or refute this have so far proved inconclusive, for the laked blood used in Experiment 5 failed to infect, though unfiltered, and therefore Experiment 6 with the same after-filtration is of no value. That the blood used was originally infective is proved by the success of Experiment 4, in which the untreated whole blood from the same patient gave rise, after injection intravenously, to an acute and typical attack of trench fever. We can only suppose that the distilled water employed to lake the blood
as sufficient to destroy the virus — a point in sup-
of the supposition that trench fever is not a bac-
i fection.

vidence for suspecting the body louse as the
of the disease has been very conflicting
We would instance the statements of
st, Weldon and Davies, Dyke and
and Nankivell.

its to transmit the disease by means
infected lice have proved entirely

WITH BITES ALONE

t was made to infect by bites
hanical transmission being
transferred from the trench
until after the lapse of a
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subject received not
es of infection when
ich fever patients, are
taken into consideration, amounted to at least 33,965. No signs of trench fever have been detected in the man experimented on during a period of more than two months' observation.

Experiment 2 was similar to Experiment 1 in all respects during the first twenty-nine days of louse feeding. Thereafter no attempt was made to exclude mechanical transmission, and lice were frequently transferred from numerous febrile trench fever patients to the healthy man at short intervals and on several occasions before the feed on the trench fever patient was complete, in the hope that the lice would continue feeding at once. Such attempts to infect were continued almost daily for fifteen days. The louse bites totaled 13,224, and the chances of infection, 52,081. This experiment gave equally negative results, though the subject has been observed for more than a month since louse feeding ceased, or during a period of nearly three months in all.

INOCULATION BY SCARIFICATION

While carrying out the last two experiments we were struck by the fact that neither of the experimental subjects was ever seen to scratch himself or to show evidence of having done so. It was determined, therefore, to try to discover whether the failure to infect was attributable to this cause. Experiment 8 was therefore devised.

Excreta were collected from entomological boxes containing 576 lice, all of which had been fed on many recent trench fever patients during the previous twenty-seven days, their last feed being six hours prior to the time of collection. The excreta were obtained by tapping the boxes containing the lice so that the powder, in which the excrement results fell through the fine mesh gauze cover of the boxes and was collected in a sterile watch glass. For this reason the excreta obtained were thoroughly dry as far as could be observed with the naked eye. Feb. 5, 1918, a suitable volunteer having been obtained, a small surface of skin on the outer side of the upper arm was lightly scarified so that blood was just drawn. A portion of the collected excreta was dusted into this blood and rubbed up into a paste by means of a previously sterilized needle. The scarified area was allowed to dry in the air and the shirt sleeve then pulled down over it without the application of any dressing. The skin before scarification had not been treated in any way, nor had the volunteer ever been verminous or bitten experimentally by lice to our knowledge. Eight days later, February 14, a febrile illness commenced which we believed was undoubtedly trench fever; a relapse followed on the sixth, seventh and eighth days of the disease, with recurrence of symptoms, though the highest temperature recorded was only 99.6. On the evening before the development of the disease a similar scarification and inoculation to that of February 5 was performed, and later the same evening the patient's temperature was found to be 99.4 though he appeared to be otherwise in his usual health. The lice from which excreta were collected for this experiment had all fed on the two volunteers used for Experiments 1 and 2, having continued to feed on them up to the day Experiment 8 was performed. The lice used for our biting experiments are therefore known to have been certainly infective.

On the same day another volunteer was scarified in like manner, and two lice, recently fed on a trench fever patient, were squashed over the scarified area. It seemed that such an inoculation might often take place under natural circumstances. From hatching, these two lice had fed daily for thirteen days (from the eleventh to the twenty-third day of trench fever attack) on the patient whose blood had proved to be infective in Experiment 4. During this period the trench fever patient's temperature was only once above normal (99 F.), six days before the lice were taken for this experiment. In addition, the lice received a feed on a febrile trench fever patient, whose nineteenth day of disease this was, fifteen minutes before their use for inoculation. No local sepsis or glandular enlargement resulted in either of these scarification experiments. After an incubation period of ten days, the volunteer developed trench fever. The onset was somewhat gradual, though the fully developed disease was typical, with frontal headache, pain in the lumbar region, and conjunctival congestion. No definite relapse occurred, though the temperature was just above normal on the evenings of the seventh and eighth days. Cardiac arrhythmia was detected for the first time on the fourteenth day of the disease, and then only for a few hours. As in the previous experiment, scarification was repeated before the onset of trench fever. Convalescence was rapid and recovery apparently complete. On the second occasion, three days before the onset of trench fever, sixty lice were emulsified in 1 c.c. of physiologic sodium chlorid solution and applied to the scarified area. These lice had fed twenty minutes previously, for thirty minutes, on two febrile trench fever patients, and all contained fresh blood when squashed.

In estimating the incubation periods in these two experiments, we have disregarded the second scarification and inoculation in each case, our justification being the evidence obtained as to the incubation period in similar scarification experiments performed subsequently. We have shown lately that 10 c.mm. of active trench fever blood when rubbed into the scarified skin will not produce trench fever—10 c.mm. is about the amount of blood contained by the eleven lice used in the last experiment.

With as little delay as possible three further volunteers were obtained and inoculated with excreta from lice previously fed on various trench fever patients (Experiments 10, 11 and 12). These experiments were simply a repetition of Experiment 8, and all proved equally successful.

In Experiments 10 and 11, the excreta were used fifteen minutes after collection. In Experiment 12 the excreta were kept in a watch glass for one hour and fifteen minutes before use.

Some of the lice from which the excreta were obtained had fed daily for the previous thirty-five days on various febrile and afebrile trench fever patients.

Of the three volunteers, the first commenced his trench fever attack, after an incubation period of six days, by rolling out of his chair at breakfast. When placed in bed he complained of frontal headache, but was in such a state of mental confusion that his statements were unreliable, and his memory of this period has since remained a blank. The attack proved typical and severe, though without bone pain, and was followed by characteristic relapses with a return of symptoms. The second volunteer showed an entirely different onset. He became gradually ill and took to his bed complaining of headache and vague pains in the limbs two days before his temperature rose. The incubation period in this case was seven days if the first rise of temperature is considered as the onset of the disease. The fully developed attack was characteristic, with frontal headache, anorexia, slight tenderness of the shins, lumbar pain, and tenderness below the right costal margin. On the following day, after a very restless night, the patient was complaining of pain below the left costal margin, and the shins were more tender. A white blood count gave 12,500 leukocytes per cubic millimeter. By the fifth day of the disease the patient was up and feeling quite recovered. No febrile relapse has followed, but the patient has begun to feel weak and depressed and has complained of pain in the legs and the region of the spleen.

The third volunteer developed trench fever after an incubation period of eight days. On the day of onset he was seen by one of us at noon. At that time he appeared quite fit, and his temperature was normal. After eating his midday meal he went out for a walk, and while out his "legs gave way under him." He returned home with difficulty; feeling cold and drowsy, he lay down and went to sleep. He states that on waking he micturated freely, was nauseated, and was suffering from frontal headache. When seen at 2 p. m. his temperature was already 102.6, and he was obviously ill.

The following day the spleen was easily palpable but not tender. No bone, skin or tendon tenderness could be elicited. This fever wave lasted sixty-two hours. After a period of apparently normal health an acute febrile relapse took place on the sixth, seventh and eighth days of the disease. At this time the calf muscles and Achilles tendons of both legs were very tender. On the twenty-eighth day of the disease, definite shin bone pain and tenderness were complained of.

From these results it appeared obvious that the excreta of lice fed on trench fever patients were capable, when applied to an abraded skin area, of producing a febrile illness similar in its relapsing character and general clinical picture to the disease at present known as trench fever.

Experiment 15 did much to confirm the view that we were actually producing trench fever.

Five c.c. of whole blood from the volunteer infected by scarification with louse excreta in Experiment 10 were injected intravenously into a healthy man. After an incubation period of five days, an attack of fever developed with frontal headache, conjunctival congestion, lumbar pain, shivering, sweating and later pain in the shins with tenderness of the calf muscles and Achilles tendon, in fact, typical trench fever. The onset of this disease corresponded exactly in point of time with the commencement of the first relapse of the man whose blood had produced the infection. Typical relapses followed. On the same day as this whole blood transmission was performed, unfiltered serum from the same volunteer (Experiment 10) was inoculated intravenously into a healthy man (Experiment 16). The serum was obtained as follows: Twenty-one c.c. of venous blood were withdrawn and transferred to two centrifuge tubes, no citrate being added. The blood was allowed to clot at room temperature. Three hours later the clots had fully contracted, but the serum remained tinted, and microscopic examination of a small quantity showed it still to contain blood cells. The tubes were therefore centrifugalized for fifteen minutes. One tube remained slightly hemoglobin tinted throughout, and so was rejected. From the second, 4.5 c.c. of clear straw-colored serum were obtained, and this, three hours and twenty-five minutes after withdrawal, was injected intravenously. The volunteer remained healthy during the following thirty-six days' observation, and the result must therefore be considered to be negative. It seems possible that the unfiltrable virus we are dealing with may be capable of being thrown down by the centrifugalization employed, so that this serum transmission experiment awaits repetition.

NORMAL LICE

The foregoing experiments give rise to the question: Is trench fever a disease of normal lice; are excreta from them ordinarily infective?

Fresh lice were therefore obtained from Bacot's stock at the Lister Institute, and the excreta collected from 500 of these during five days' feeding on a healthy man. The excreta were well mixed and rubbed into scarified skin areas of two healthy volunteers (Experiments 17 and 18). Both men remained perfectly healthy for twenty-five days, and were then considered to be available for further experimental work. Our question seemed, therefore, to have been answered. Trench fever is not a disease caused by normal lice, and Bacot's stock with which we are working may be considered to be not infected. Cultures of the excreta used in these normal lice experiments showed what we take to be the organism of trench fever described by Jungmann. This diplobacillus would therefore appear not to be the cause of trench fever.

That excreta of lice fed on trench fever patients could infect when recently passed was therefore accepted.

DURATION OF INFECTIVITY OF EXCRETA

Our next problem to determine was, Would such excreta retain their virulence for long periods?

For this purpose the remainder of the excreta proved to be infective in Experiments 10, 11 and 12 was added to excreta collected from many other supposed infective lice.

The whole of these excreta had been kept in glass tubes at room temperature and frequently in sunlight, for sixteen days. The excreta were inoculated into a scarified skin area of a healthy volunteer (Experiment 21). After a seven days' incubation period, trench fever developed. The onset was sudden with headache, conjunctival congestion and the usual anorexia and thirst of fever. This fever wave lasted ten days and was certainly suggestive of a modified typhoid attack. On the third day three loose brown stools containing blood and mucus were passed, but cultural and microscopic examinations of the stools for enterica and dysentery were negative. Mr. Dobell has very kindly examined six stools from this patient and reports they were all negative for *Endameba histolytica.* He adds that "the only protozoa present are the encysted forms of the common colon ameba (*E. coli*) with which the patient is very heavily infected," and gives as his opinion that "the patient is not infected with *Endameba histolytica;* and therefore that his attacks of 'dysentery' accompanying his trench fever were almost certainly not connected in any way with this parasite." On the fifteenth day of illness an acute febrile relapse commenced. The patient vomited once on the fifteenth day and suffered from the same symptoms as during the first days of illness, with the exception of the diarrhea. No pains in the back or limbs and no splenic change could be detected during either initial attack or relapse. Further blood tests for enterica proved negative, and on the clinical course and temperature chart of the case we based our diagnosis of trench fever. This patient has had further intermittent fever and has developed disordered action of the heart.

How much longer such excreta are infective remains to be proved, but that old louse excreta may be virulent without the presence of lice must be accepted, and has an important bearing on prophylaxis. Such excreta are very light when dry and can easily be blown about, so falling on abraded surfaces and wounds or into food and drink.

EXCLUSION OF INFECTION BY MOUTH

Could infection take place by the mouth? at once became an important question.

Two volunteers were therefore fed once daily, for fifteen and nine days, respectfully, with bread containing louse excreta which were known to be infective. At the same time some of the fine dry excreta were snuffed up the nostrils of each man (Experiments 13 and 14). Forty-five days later both men appeared in their usual health; this was twenty-five days since the last contaminated meal. In the interval one of the men had had an acute exacerbation of chronic bronchitis, but both men had remained free of trench fever.

We believe, therefore, that trench fever is not communicable by the mouth, though further experiments are being undertaken.

HEREDITARY TRANSMISSION IN THE LOUSE

A test for hereditary transmission of trench fever in the louse was next made (Experiment 22).

Eggs were collected from boxes of trench fever infected lice. The larvæ as they hatched were placed in a clean new box and fed on healthy men. Nineteen days later, the lice being then adults, the excreta passed by them during a period of three days were collected and rubbed into a scarified skin area of a healthy man. No trench fever symptoms resulted during twenty-six days' observation.

We may therefore conclude that trench fever infected lice do not transmit the virus to their offspring.

TIME WHEN EXCRETA BECOME EFFECTIVE

Is the louse simply a mechanical transmitter of trench fever, or does a developmental stage of the virus take place? were the next questions to be answered.

Five hundred fresh lice were obtained from Bacot's stock and placed in two clean boxes. For two days these lice were fed on healthy men, and their excreta collected and retained, in order that they might be used later for control experiments if necessary. The lice were then fed five times during twenty-four hours on a patient with an active febrile case of trench fever whose temperature fell from 101.2 to 98 and then rose again to 98.6 during the period of feeding. The patient at the time was suffering from frontal headache and pains all over the body, especially in the loins and shin bones, with later tenderness of the calf and thigh muscles. This was the seventy-ninth day of this patient's disease, he having been previously afebrile for thirty-eight days while under observation by us. Thereafter during a period of thirty days the lice were fed only on healthy men, receiving two feeds daily and being kept in an incubator at 30 C. (86 F.) during the intervals between feeds. At the end of each twenty-four hours the lice were transferred to a new clean box, care being taken that, as far as possible, their excreta were not transferred with them.

Daily, during the same time, the excreta passed by the lice during the previous twenty-four hours were collected and placed in a sterile glass tube.

Owing to lack of sufficient volunteers, it was not possible to inoculate men daily with the excreta so obtained. In order to cover as long a period as possible, the excreta passed during the first, third, fifth, eighth, twelfth and twenty-third days were tested by inoculation into scarified skin of successive volunteers (Experiments 23, 24, 25, 26, 27 and 30). The excreta were inoculated each time on the day of collection, with the exception of the excreta collected on the twenty-third day, which were kept for twenty-four hours before being used. The first four men remained healthy, after inoculation, for twenty-five days or longer.

The man inoculated with excreta collected at the end of the twelfth day was the first of the series to develop trench fever. In this case the onset was sudden after an incubation period of eight days. The first wave of fever lasted seventy-two hours, the maximum temperature attained being 103.8 on the second day. The symptoms were general malaise, frontal headache and pink eye, with later backache and tenderness of the muscles and tendons of the legs. With the fall of temperature on the third day, profuse sweating occurred, and pain below the left costal arch was complained of. The pulse remained below 80 throughout the initial attack. Relapses followed.

The man inoculated with excreta passed by the lice during the twenty-third day developed trench fever after eight days' incubation. The onset was sudden with frontal headache, pink eye, and pain in the lumbar region, hips and knees. The painful areas were not tender, though the patient complained of feeling so sore that he could not lie still. The temperature chart was that described as "saddle-back." A similar series of experiments has lately given positive results for the seventh, ninth, tenth and eleventh days, with negatives for the first, sixth and eighth.

It appears from these results that the excreta from lice do not become infective for some days after the lice have fed on a trench fever patient. The exact number of days lies between eight and twelve. Such lice continue to pass infective excreta up to the twenty-third day, at least, while feeding only on healthy men.

RESISTING POWER OF THE VIRUS

To test further the resisting powers of the virus of trench fever, as it exists in the excreta of lice, a series of three experiments (32, 33 and 34) was carried out.

A large quantity of louse excreta was collected from various sources and well mixed. Some of this excreta had been proved to be infective in Experiment 21; all was believed to be infective. This mass of excreta was divided into four parts.

The first part was bottled and kept for future work.

The second part was rubbed into the scarified skin of a volunteer in equal portions on three successive days. This was a control experiment to prove the infectivity of the material dealt with (Experiment 32).

The third part was placed in a glass tube, previously warmed, the mouth of which was then closed with a plug of dry absorbent cotton. The tube was immediately placed in a hot-air bath registering a temperature of 55.7 C. and kept there for twenty minutes, by which time the temperature of the bath had risen to 56 C. The excreta remained thoroughly dry throughout. A portion of it was then rubbed into the scarified skin of a healthy man. The following day the balance of the excreta was reheated to 55 C. for twenty minutes, as there seemed some chance that the excreta had become contaminated in the interval. This reheated excreta was divided into two portions and one rubbed into the scarified skin of the same man on that day and the other on the next (Experiment 33).

The fourth part was placed in a glass tube, the mouth of which was then closed with absorbent cotton and the tube placed in a vapor bath registering 80.5 C. and kept there for ten minutes. The excreta became slightly moistened during the process. On removal it was divided into three portions and these were rubbed into the scarified skin of one healthy man on each of three successive days (Experiment 34). This degree of heat was employed as sufficient to destroy a virus other than a spore-bearing organism.

A temperature of 56 C. for twenty minutes was employed in the previous experiment as being the temperature of dry heat necessary to disinfect clothing.

The man inoculated with the unheated excreta developed trench fever after an incubation period of eight days. The onset of the attack was sudden with frontal headache, pain in the muscles of the thighs and left arm, shivering, sweating, a marked leukocytosis and later lumbar pain. A febrile relapse followed on the sixth, seventh and eighth days, during which definite shin bone pain was complained of in both legs. No tenderness, however, was elicited.

Vertigo was complained of in the interval between these two febrile waves.

The repetition of the inoculation in this case made no apparent difference in the course of the disease or the temperature curve. The chart with the two-hourly observations that we are in the habit of making, illustrated the rapid fluctuations of temperature, pulse rate and leukocytosis which are so characteristic of the febrile stages of the disease. The gradually mounting leukocyte count during the last four days of incubation was well brought out.

The excreta heated to 56 C. proved equally virulent. After an incubation period of eight days the volunteer developed trench fever. The onset of the attack was sudden with frontal headache, slight pink eye and a moderate leukocytosis. A febrile relapse with the same symptoms followed on the sixth, seventh and eighth days, with the second relapse commencing on the thirteenth day. The whole attack was mild, without limb pains, but otherwise characteristic. The patient's disease has been passed on to others both by the syringe and by lice.

The man inoculated with the excreta heated to 80.5 C. remained healthy.

A temperature of 80.5 C. must therefore be considered as sufficient to destroy the trench fever virus, which is, in consequence, not a spore-bearing organism. The lowest temperature required to disinfect as well as disinfest the clothing of trench fever patients is still being investigated.

TESTS FOR IMMUNITY

Many patients reaching us from France gave a history of repeated attacks of trench fever. Were such attacks reinfections or relapses?

We have attempted to reinfect five men with the following results:

The first patient has passed through a typical trench fever attack with a roughly seven day periodic fever, shin pains, frontal headache, pain in the loins, shivering and sweating. This illness was contracted in France. The onset of the attack was sudden, Nov. 24, 1917. Five definite waves of fever occurred between that date and December 21. Thereafter the temperature showed considerable daily variations, though only once reaching 101, Jan. 22, 1918, or on the sixtieth day of the disease. March 5, 1918, 102 days from the original onset the man appeared to be in good health. He was then scarified and inoculated with excreta from lice fed on many trench fever patients (Experiment 20).

March 14, after an incubation period of eight days, there was a sudden onset of fever with frontal headache, and pain in the right temporal region and in the loins. The right side of the face became swollen, owing to periostitis of dental origin. The following day the offending molar was extracted and the swelling quickly subsided.

With the fall of temperature on the third day there were sweating and polyuria, and all symptoms abated. On the sixth, seventh and eighth days an acute febrile relapse occurred, and the splenic area became tender, though the spleen could not be felt. On the twenty-eighth, twenty-ninth and thirtieth days a second febrile relapse followed, during which shin bone pain was complained of for the first time.

It would appear that in 102 days this man had made a complete recovery from his first attack of trench fever, and was, in consequence, susceptible to reinfection.

The second and third patients had contracted trench fever at our hands (Experiments 11 and 12), the disease having been produced by scarification with excreta from infected lice. They had reached the thirtieth and thirty-first days of disease, respectively.

Both men showed evidence of persistent infection. In one case, pains in the head and limbs were complained of; in the other, headaches. The spleen in the latter was palpable. Both men were scarified and inoculated with the excreta of lice known to be infected, in the manner which originally produced their disease.

Neither showed any symptoms as a result, though observed for another twenty-five days. They must therefore be considered to be immune to reinfection and also possibly to be still infected. We may suppose that such men are liable to relapse, in which case they may be considered as potential carriers of trench fever.

The fourth patient contracted trench fever in France, giving a history of one attack in October, 1917, and a second commencing in January, 1918. The second attack was acute and witnessed by ourselves. We regard it as a relapse of the original infection. There were three "spikes" of temperature with pains in the head, back and limbs, and in the bones, muscles and joints. The spleen became palpable and tender. On the sixty-second day of the second attack there was still some pain in the thighs and shins, particularly at night and after exercise. There had been no fever, other than a temperature of 99.2 one evening, for forty-six days. On this day 5 c.c. of whole blood, from an active case of trench fever, were injected into him intravenously.

The patient from whom the blood was obtained had reached the sixty-third day of his attack, his disease also having been contracted in France. The day previously his temperature had reached 104. When blood was withdrawn the temperature was falling, but the disease remained acute. There was pain in the legs and arms, and in the muscles, bones and joint cartilages, with marked hyperalgesia of the skin of the legs. The fingers and toes ached. The tibiae were tender as well as painful. The spleen was palpable but not tender, and there was headache and backache. Sweating had begun. These details are given, as no control injection was made with this blood. No change occurred in the patient who received the blood intravenously, and after thirty-one days he still complained of pains in his legs, and general debility. He would appear to be immune to reinfection for the present. Is he also a carrier and liable to relapse?

The fifth patient was admitted to Hampstead from France for a typical attack of trench fever, his symptoms being headache, dizziness, shin bone pain and tachycardia. His records showed that he had suffered from diarrhea, with blood and mucus in the stools, during the early days of the attack. The temperature records for the first nine days of disease were missing, but thereafter his chart showed seven typical spikes of fever on the tenth, fourteenth, seventeenth, twenty-second, twenty-ninth, thirty-fifth and forty-second days of disease.

On the ninety-eighth day of disease the patient was complaining of pain in the bones of his legs, with tenderness and of general weakness. There was evidence of disordered action of the heart, with a history of heart trouble resulting from rheumatism before infection with trench fever. During the previous sixty-nine days the temperature never exceeded 100, though it had been frequently above normal. On this day 5 c.c. of venous blood were injected into him intravenously. This blood had been obtained from the volunteer infected in Experiment 33 by means of louse excreta heated to 56 C. The blood was proved to be infective by Experiment 36. The last was simply a control experiment, 5 c.c. of venous blood being injected intravenously. After six days' incubation, trench fever developed, the only sign of the disease, when the temperature was discovered to be raised, being slight lumbar pain.

This fifth patient has shown no signs of reinfection during a period of twenty-five days.

A FURTHER TEST

In connection with these tests for immunity may be described two experiments (7 and 19) performed on a volunteer.

The subject came to us, Feb. 2, 1918, and careful examination revealed him to be thoroughly fit. He gave a history of smallpox in youth and of having been lousy each year while hop-picking, but no history of any illness suggestive of trench fever. February 4, 5 c.c. of venous blood were withdrawn from the volunteer infected by intravenous blood inoculation in Experiment 3 whose temperature at the time was 100.4, this day being the third of his initial attack. The blood was drawn up into a syringe containing 3 c.c. of a 1.8 per cent. solution of sodium citrate. Half a minute later the total fluid contained in the syringe was injected deeply into the muscles of the right buttock. For thirty-eight days after this the man remained in good health.

Before this experiment could be accepted as evidence that trench fever cannot be passed through two successive generations by means of the syringe alone, it was necessary to infect the man in some other way. Experiment 19 was therefore performed.

March 13, 5 c.c. of venous blood were obtained from an active case of trench fever, the syringe into which it was drawn containing 1 c.c. of 1.8 per cent. sodium citrate solution, and the whole injected deeply into the right buttock as before. The patient from whom the blood was obtained had contracted his disease in France and had reached the fifty-first day of his illness. His temperature was 101.6 at the time, and he was complaining of aching pains in the back and legs, with painful shins. The spleen was both palpable and tender, and the skin was acting freely. He has since had acute febrile relapses on the fifty-eighth and sixty-seventh days of his disease.

Eight days after receiving the injection, the subject complained of slight tingling sensations in the back. The following day he was feeling generally unwell, and his right thigh ached while out walking before breakfast. That night he slept badly, owing to aching in both thighs. There was no shivering or frequency of micturition. In the morning he complained of feeling hot at intervals, and at 11 a. m. was noted to be sweating slightly. At this time two hourly observations of his temperature were being made and no fever could be detected. He complained however, of dull frontal and occipital headache with impaired vision, pain in both arms from shoulders to finger tips, and pain in both thighs from hips to knees. The thighs and gluteal muscles were tender on pressure, and the skin over these areas was exquisitely tender to touch. There was, however, no evidence of local inflammation at the site of injection. There was no backache at this time and no tenderness or enlargement of liver or spleen. All the joints were normal and the tongue clean.

By the next day there was a great decrease of all symptoms. On the fifteenth day after the injection he was up and in his usual good health.

On the nineteenth day he took to his bed again with frontal headache, pink eye, pain and tenderness in the lumbar muscles, and slight muscle pain and tenderness in both thighs. Tenderness was well marked in the splenic area, but the spleen could not be felt.

After forty-eight hours he was quite fit again and has remained so since. At no time throughout his illness was he detected to have a raised temperature.

This attack so strongly suggests trench fever that we are inclined to believe that it is an afebrile form of the disease. Lice were fed on the subject while his symptoms were acute, and excreta from them have produced a febrile illness in another man. The subject has proved himself to be refractory to infection and might at one time have been thought to be naturally immune. We may therefore say that one attack of trench fever confers immunity while symptoms of the disease persist, though we can say nothing further. From observation of our cases from abroad we are convinced that active febrile relapses may occur many months after the original infection. Second infection in such cases can be excluded, as the patients have been under our observation throughout the whole interval. Many of our patients give histories of two or more attacks of trench fever, but we are by no means convinced, as yet, that these are all reinfections, as it is not uncommon to find that since the first attack normal health has never been regained.

CLINICAL FEATURES OF EXPERIMENTAL INFECTIONS

A comparison of the clinical features of these experimental infections is of some interest. Of the seventeen attacks of trench fever produced by us, thirteen have shown a sudden and four a gradual onset—76.5 and 23.5 per cent., respectively. Eight men remain in hospital, and of these, three show evidence of developing the chronic form of trench fever. Six after discharge from hospital have returned to some form of useful work. One had symptoms of disordered action of the heart when he left us.

The two outstanding features are:

1. One sample of louse excreta in Experiments 10, 11, and 12 produced three different clinical attacks of trench fever. Two were sudden in onset and one gradual. One case showed splenic enlargement without pain, one splenic pain without enlargement, and one no splenic involvement. The last man had no pain in his limbs at any time. The other two had recurrent pains in the shin bones. One of these had a single wave of pyrexia; the other two had definite febrile relapses. The only features common to all three were an initial fever of roughly three days' duration with frontal headache and conjunctival congestion.

2. The blood from the patient without limb pains, just noted, when injected intravenously into another man, produced an attack of relapsing trench fever with marked shin bone pain.

The majority of the attacks can only be described as mild, the patients making an uninterrupted recovery in about three weeks. Such a course is that probably followed by the majority of natural infections in France and elsewhere, and the patients invalided to this country must be considered as only a small percentage of the whole.

SUMMARY OF EVIDENCE FROM EXPERIMENTAL WORK

1. The whole blood from febrile trench fever cases, up to the fifty-first day of disease, when injected intravenously, is capable of reproducing the disease. The incubation period in such infections varies greatly —from five to twenty days.

2. The virus as contained in the circulating blood is destroyed by the addition of distilled water in large quantities.

3. The bites alone of infective lice do not produce trench fever.

4. The excreta of infective lice when applied to a broken surface of skin do readily produce trench fever. The incubation period of such infections is remarkably constant, and averages eight days.

5. The excreta passed by lice fed on trench fever patients are not infective till the expiration of not less than seven days from the commencement of the feeding on trench fever blood, thus indicating a developmental cycle in the louse or a period during which the organism multiplies.

6. Once lice are infective they remain so till at least the twenty-third day from the date of their infection.

7. The virus of trench fever, as contained in infected louse excreta, is capable of withstanding drying at room temperature, exposure to sunlight, keeping for not less than sixteen days and heating to 56 C. for twenty minutes.

8. A temperature of 80 C. for ten minutes destroys the virus, which is therefore not a spore-bearing organism.

9. The bodies of infected lice when crushed on the broken skin are capable of producing trench fever. When lice become so infective remains to be determined.

10. Active trench fever blood equivalent to the content of eleven lice does not produce trench fever when rubbed into the broken skin.

11. Infection probably does not take place by the mouth or by inhalation.

12. The excreta of lice are not normally capable of producing trench fever.

13. Trench fever infected lice do not transmit the disease to their offspring.

14. Some attack of trench fever may be afebrile throughout.

15. The percentage of individuals naturally immune to trench fever is exceedingly small.

16. Old age is no bar to infection.

17. Such immunity as results from an attack of trench fever is not permanent and may persist only for so long as the individual shows evidence of the disease.

18. Even as late as the seventy-ninth day of disease a patient's blood may remain infective and be capable of infecting lice fed on such a patient while febrile.

19. The different varieties of trench fever result from differences in the persons infected rather than in the source of infection.

THE VOLUNTEERS

As our experiments have been but few, some of these findings may be modified by future work.

The men on whom these experiments have been performed were all volunteers fot the purpose. They were in most cases beyond the age of military service, and in no instance had they been in France or subject to infection with trench fever in the usual way. They have been kept strictly apart from all trench fever patients while with us, having been housed in buildings at some distance from the hospital.

Every man was observed for some days before any experiment was performed on him. In addition to the ordinary physical examinations, with pulse and temperature records, polygraph tracings were made, also thorough laboratory examinations of blood, stools, urine and sputum, for the purpose of excluding all forms of dysentery and typhoid, Malta fever, tuberculosis and malaria.

These men all volunteered from patriotic motives and are deserving of the highest praise in consequence. We owe a deep debt of gratitude to them and to Dr. Wiggins of Greenwich, who brought us in touch with them. The expenses connected with this experimental work have been met entirely by the Lister Institute of Preventive Medicine.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

DEXTRI-MALTOSE NO. 2, MEAD'S.—A mixture containing approximately maltose, 53.1 per cent.; dextrin, 42.6 per cent., and moisture, 4.3 per cent.

Actions and Uses.—On the claim that maltose is more readily assimilable than other forms of sugar, Mead's dextri-maltose No. 2 is proposed for use in the diet of adult invalids. The nutritive value of 500 gm. of Mead's dextri-maltose No. 2 corresponds to approximately 1,960 calories. The same quantity of milk represents 360 calories.

Dosage.—Mead's dextri-maltose No. 2 may be used in amounts to meet the carbohydrate requirements of the invalid in place of other carbohydrates.

Manufactured by Mead Johnson and Co., Evansville, Ind. No U. S. patent or trademark.

DEXTRI-MALTOSE NO. 3, MEAD'S.—A mixture containing, approximately, maltose, 52 per cent.; dextrin, 41.7 per cent.; potassium carbonate, anhydrous, 2 per cent., and moisture, 4.3 per cent.

Actions and Uses.—On the claim that maltose is more readily assimilable than other forms of sugar, Mead's dextri-maltose No. 3 is proposed to supplement the carbohydrate of cow's milk. In the belief that an addition of potassium salts counteracts a tendency to constipation, it is said to be particularly adapted in the feeding of constipated infants. The nutritive value of 500 gm. of Mead's dextri-maltose No. 3 corresponds to approximately 1,920 calories. The same quantity of milk represents 360 calories.

Dosage.—Mead's dextri-maltose No. 3 may be used in amounts to meet the carbohydrate requirements of infants in place of other carbohydrates.

Manufactured by Mead Johnson and Co., Evansville, Ind. No U. S. patent or trademark.

Increase of Tuberculosis in France.—In order to check the appalling growth of tuberculosis in France, for which the war is largely responsible, the American Red Cross has undertaken widespread and thorough measures of relief. Since the French department of the interior assumes the care of tuberculous soldiers, the work of the Red Cross is confined to the refugees and repatriates who were caught in the German invasion of France and Belgium. Many of them were cared for in the tuberculosis barracks which had been provided in connection with the large hospitals and almshouses of Paris, where 1,052 beds were available. The Red Cross instituted many improvements in the barracks, increasing the nursing force, establishing diet kitchens and recreation rooms, providing additional clothing and bedding, and erecting new cure halls and dining rooms. Because of the fact that the wretched housing conditions under which many of the refugees were forced to live made them peculiarly susceptible to tuberculosis, a plan similar to the home hospital system prevalent in New York City has also been put into use. Small houses are now being constructed for families having one or more tuberculous members. Each house consists of two sleeping rooms and a living room, with a small porch for the patient, in order to minimize the danger of infection. The children are to be placed in open-air schools and to be given vocational training in such trades as gardening, tailoring and carpentry. The Red Cross is also planning to aid the American Army in France by caring for the soldiers who develop tuberculosis. For this purpose a hospital is to be erected near the shipping ports, where patients in need of attention before their return home will receive special treatment. The organization at present maintains and conducts four tuberculosis hospitals in France and, in addition, contributes funds and supplies to ninety-six French hospitals.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JULY 20, 1918

THE RACE FOR LIFE IN CHILDHOOD

When the announcement was made a few months ago by the Bureau of Child Hygiene of our largest American city that beween 12 and 15 per cent. of its schoolchildren are underfed, it was received with skepticism by some and with surprise by others. The statement appears even more disconcerting when it is expressed in the terms selected by an expert in the sociological conditions prevailing among the less well-to-do. Thus Manny[1] of the New York Association for Improving the Condition of the Poor frankly states, as the result of the studies made in New York, that at least one third of the schoolchildren are so much below normal standards of growth as to call for special nutritional care. Of this group, at least one third require medical treatment, while two thirds may be expected to respond to improved living conditions, especially as regards feeding. There are now in the public and parochial schools of New York City more than a million children. Of other children between 2 and 6—the "preschool" age—and between 6 and 16 but out of school and either at home or at work, there are nearly as many again. This, if the conditions found by our study are at all typical, means that at a moderate estimate there are more than half a million children in need of nutritional attention; more than half a million children requiring an additional investment on the part of society if they are to be placed on a plane of reasonable efficiency. These are not merely American problems. The chief medical officer of a large English Board of Education stated as recently as 1910 that defective nutrition stands in the forefront as the most important of all the physical defects from which schoolchildren suffer. Subsequently an English writer, C. J. Thomas,[2] estimated the amount of undernourishment in the English school population at between 10 and 15 per cent.

Statements like the foregoing may be made on the basis of a superficial observation of the appearance of children, who may be put into the category of underdevelopment because they "look delicate." Indefinite considerations of this sort are, of course, not without some value; but the modern sociological worker and physician are not content with such somewhat intangible criteria of nutrition. Hence has arisen the recent plan of accurate measurement of such phenomena and conditions as permit quantitative evaluation. Weight and height are carefully determined, the results being compared with statistical standards or averages for comparable ages or sizes.[3] The significance of the ratios thus obtained is further enhanced through a careful medical examination and gradation of the children by an experienced physician. The result has been the establishment of scales for grading nutrition in the adolescent; thus the Dunfermline scale takes account, among other things, of weight and height measurements, muscular development, the condition of the circulation, and other features, with a resultant classification into four grades.[4]

Thus far we have made the tacit assumption that the defects represented by the "delicate" child are remediable by nutritional and environmental changes. So far as backwardness and inferiority are the expression of hereditary "constitutions," the prospect of a remedy by hygienic devices is not promising. Experiences gathered during the past ten years seem to indicate quite clearly that many if not most of the deficiencies represented by physical inferiority in the great masses of children are not irremediable inheritances, but the outcome of inadequate opportunity to enjoy a proper dietary regimen and hygienic surroundings. Poor nutrition may be corrected; inherited defects of physique rarely are so readily corrected.

Among the newer methods of remedying the results of defective nutrition are the nutrition clinics and classes. For many of their features the "tuberculosis classes" have afforded a model. The details of the history of the class method need not be given here, though the pioneers in this work deserve prominent recognition for what they brought about. In 1908, Emerson[5] collected into a class a number of the weakest and most poorly nourished children from several thousands of patients coming to the children's department of the Boston Dispensary. The past record of the child, its physical condition, diet and home life, including the time spent in sleep, outdoors, etc., were carefully considered. A social visitor was sent to the home to ascertain further details. On the basis of all the data obtained in such ways, a talk was given to the class as a whole on Saturday mornings, explaining hygiene and diet and open air life. A few instructions in food values were issued. Bread and butter or cereal and milk were urged in place of tea and coffee. Other children and parents became sympathetic listeners; and at the weekly conferences the successes recorded, as well as the reasons for failures to gain, aroused not only respectful attention but active interest and wholesome speculation as to the outcome. The results were indisputable. If a child did not gain, a careful study of the case was made; the reason was usually found easily and the failure remedied. As Emerson has reported, the class method arouses a spirit of competition, the "game" in it, which has a powerful attraction to the child as an aid to its management. The evident measurable gains furnish a strong incentive alike to children and parents, making the necessary instruction to the latter easy and effective. The results obtained each week remove the prejudices and fears, and convince in a moment, as if by magic, where hours spent in argument fail.

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[1] Manny, F. A.: Defective Nutrition and the Standard of Living, Survey, March 2[illegible], 1918.

[2] Thomas, C. J.: in The Care of the School Child, Edited by James Kerr, London, 1916, p. 109.

[3] Manny, F. A.: A Comparison of Three Methods of Determining Defective Nutrition, Arch. Pediat., 1918, **35**, 88.

[4] Manny, F. A.: A Scale for Grading Nutrition, School and Society, Jan. 22, 1916.

[5] Emerson, W. R. P.: The Hygienic and Dietetic Treatment of Delicate Children by the Class Method, Boston Med. and Surg. Jour., 1910, **163**, 326.

This pioneer attempt has been duplicated on a much larger scale by Smith[6] in New York, in connection with Bellevue Hospital. Every child who has applied for admission to this class has been accepted if he has been 5 pounds or more underweight for his age. A parent or some adult member of the family has been expected to attend the class for the first few visits so that advice and instruction could be given to a responsible person. The general plan was to make a careful diagnosis, to correct remediable physical defects, to determine and correct any economic factors that had a bearing on the case, and to try to improve the hygiene and diet of the child by every means possible. It will repay workers for child welfare to study in the original the details of the plans pursued. When wasting diseases, such as diabetes, syphilis and nephritis, are ruled out, and when less conspicuous disease, such as tuberculosis, local foci of infection, such as the tonsils afford, enlarged adenoids, prematurity and hereditary defects are allowed for, there remains a possible sequence of malnutrition due to faulty hygiene and diet. In this connection it is possible to correct improper or insufficient food, irregular and other bad habits of eating, constipation, insufficient sleep, insufficient fresh air day and night, insufficient or perhaps excessive exercise, and uncleanliness of body and clothing.

What tangible good has actually been accomplished? The answer to this is the final test. By the use of class methods, Smith reports, it has been possible to make 57 per cent. of the children gain at 1.7 times the average rate for their ages, and 22 per cent. at about the average rate, or a total of 79 per cent. who have gained at or better than the average rate. Of the remaining 21 per cent., one or more reasons for the failure may be easily ascertained in every case. These results have been obtained under the most adverse circumstances. It seems fair to conclude that the class method is of value in the treatment of undernourished children, even when they must be handled in large numbers. The establishment of such classes in all outpatient departments, and perhaps in many of the schools, Smith adds, would be of great service to every community, not only by the good done the children treated, but also by the education of the public in matters of hygiene. Parents must be made to realize that a thin child is not a healthy child, and that he needs medical supervision.

A BALANCED DIET

The expression "balanced ration" and the principles that it is intended to convey have been developed largely in the domain of animal feeding. To the animal husbandman the prevailing theory of a balanced ration has postulated that the requirements for the successful growth and reproduction of an animal have been met when the supply of digestible protein and available energy is adequate. A somewhat similar idea of "balancing the diet" by securing a suitable intake of protein and calories has become current in popular literature on human nutrition.[1] Even in the planning of individual meals, some consideration of the distribution and quantities of the familiar nutrients has been urged. Thus, in her book on feeding the family, Mrs. Rose[2] has written:

> To see that these three foodstuffs are represented in good proportions in each meal is what is usually meant by serving a "balanced" meal. We should go a step further and see that some foods furnishing iron, phosphorus, and calcium and some giving "ballast" in the form of cellulose are also included, and that the fuel value of the meal is approximately the same each day; or, in other words, that we do not have a feast and upset our digestions by overeating today, and have a famine tomorrow, but stoke the furnace regularly, according to its needs. Herein lies the advantage of knowing the relative fuel value of different foods and different dishes.

The science of nutrition has emerged from its simpler beginnings into a complex of problems of great intricacy. The theory that protein and energy are the only necessary factors to be considered in formulating a ration had to be abandoned. It is not intended to imply that these aspects are negligible or even not highly important. But, so far as they are essentially quantitative rather than also qualitative in their bearing, they are not infrequently liable to exhibit serious shortcomings. Not all proteins in foods are adequate for nutrition; but even if they were, the problem of the perfect ration would be far from solved. Physiologic well-being demands a multiplicity of contributory dietary essentials.

A recent contribution from the Wisconsin Agricultural Experiment Station[3] at Madison brings a new formulation of older experiments from this institution demonstrating that balanced rations, in the long accepted interpretation of the term, are sometimes deficient in components that make for the best growth of the animals. Several years ago the station began a series of observations with cattle on the effect of "balanced" rations on growth and reproduction. The rations were, however, restricted in their makeup to a number of plants to test the adequacy of the prevailing theory that protein and energy are the only necessary factors to consider in formulating a ration. Each ration was balanced — that is, so made up as to contain the foodstuffs in sufficient amounts and suitable proportions to supply adequate energy and adequate digestible protein — but in one case it was made up entirely of feeds obtained from the corn plant, in another from the wheat plant, in a third from the oat plant, and in a fourth from a mixture of the three. The outcome was somewhat surprising from the standpoint of the older physiologic conceptions. It was found that for cattle a complete ration can be made from the corn plant. It will permit normal growth and reproduction. The same satisfactory result cannot be obtained, however, with the products of the oat plant. Furthermore, an exclusive ration of wheat grain and wheat straw, even though abundant in calories and rich in digestible protein, is in most cases fatal to both growth and reproduction. It will also produce weak or dead calves. So far as reproduction is concerned, the same statement is true with a corn grain and wheat straw ration.

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[6] Smith, C. H.: Methods Used in a Class for Undernourished Children, Am. Jour. Dis. Child., June, 1918, p. 373.

[1] Fisher, Irving, and Fisk, E. L.: How to Live, 1915, p. 171.

[2] Rose, Mary Swartz: Feeding the Family, New York, 1916, p. 202.

[3] Hart, E. B.; Steenbock, H., and Humphrey, G. C.: New Facts on Feeding Cattle for Successful Growth and Reproduction, Bull. 287, Wisconsin Agric. Exper. Station, 1918.

What is the meaning of this unexpected unlikeness in seemingly similar rations? In some cases a supplement of suitable salts remedies most of the defect and thus indicates wherein the shortcoming lies. This is true of the wheat plant. Another occasional deficiency is found in a lack of sufficient vitamins, those as yet unidentified chemical food substances that are needed for growth and reproduction. A further danger, little likely to play a part in human nutrition, is the alleged toxicity of certain plant parts when they are used in too large abundance in the ration. Thus the Wisconsin experimenters believe that in the wheat experiments cited the essential disturbing factor is a toxic substance that interferes with the utilization of materials necessary for the normal development of the nervous system of the animal, or acts on the nerves directly. It is possible, of course, that it may induce degeneration of the nerve tissue of young or mature animals. This would account for the blindness observed in the heifers and also for the failure of muscular coordination apparent in the new-born calves of wheat-fed mothers. The defects are not seen when certain foods supplement the wheat. We have here the suggestion that certain natural foods may act as correctives to others.

The lesson from these carefully planned experiments is not an indictment against any familiar cereal, any more than the occurrence of beriberi is an indictment against the use of rice. It merely emphasizes anew what has often been set forth of late in these columns, namely, that a factor of safety lies in a wide variety of diet whenever this is possible. There should be a sufficient excess of the recognized essentials to provide a safe margin of them, so long as their quantitative relations are not established. The necessity, Hart, Steenbock and Humphrey remind us, of considering such factors as toxicity, suitable proteins, growth-promoting substances or vitamins, and a proper balance of salts, indicates how complex the problem of nutrition really is and how necessary it is that the relative importance of the factors be clearly exposed in order that we may place the various feeds in their proper category. Much of this comment can profitably be translated into the problems of human nutrition, even if the details concerned in animal husbandry have no immediate bearing.

THE NEW GENUS OF SPIROCHETE—LEPTOSPIRA

Only a few years have elapsed since the word "spirochete" was practically unknown in medical circles, or suggested few associations with the genesis of disease. The description of spirochetes and the invention of the name date back to the days of Ehrenberg, 1838. Schaudinn's classic studies on what is now termed *Spirochaeta pallida* and its relation to a worldwide malady gave a new impetus to interest in this field of microbiology. Recently the identification of a spirochete as the cause of infectious jaundice[1] has served to reduplicate the efforts to learn the details and distinctions that lend accuracy to bacteriologic diagnosis. The establishment of a new genus of spirochetes, as has recently been proposed for *Leptospira* by Noguchi,[2] marks an important event.

The type organism that led to the assignment of this independent generic name to a group of spirochetes was the causative agent of infectious jaundice described as *Spirochaeta icterohaemorrhagiae* by Inada and his associates in 1914, and found to be identical with the strain isolated in cases of infectious jaundice among British soldiers in Flanders. It thus becomes one of at least six large genera of spiral micro-organisms, the *Leptospira* being characterized in distinction from *Spirochaeta*, *Saprospira*, *Cristispira*, *Spironema* and *Treponema* by peculiar minute elementary spirals running throughout the body, by the absence of flagella, and by the remarkable flexibility of the terminal portion of the organism. No differential features have been discovered among the strains of *Leptospira icterohaemorrhagiae* derived from American, Asiatic and European sources.[3]

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[1] Some Lessons from Trench Jaundice, editorial, THE JOURNAL A. M. A., June 1, 1918, p. 1602.

[2] Noguchi, Hideyo: Jour. Exper. Med., 1917, 25, 755.

[3] Noguchi, Hideyo: Morphological Characteristics and Nomenclature of Leptospira (Spirochaeta) Icterohaemorrhagiae (Inada and Ido), Jour. Exper. Med., 1918, 27, 575.

Thanks to the painstaking investigations of Noguchi[4] at the Rockefeller Institute for Medical Research, further advances have been made toward ascertaining the mode of survival and transmission of these organisms in nature. They are unable to grow in normal urine, the acidity of this secretion being detrimental to them. Under natural conditions *Leptospira icterohaemorrhagiae* cast off in the feces cannot survive longer than one day. Neither polluted water, sewage nor soil will serve to keep the organisms alive for more than a very few days; in fact, most of the aerobic bacteria found in these mediums inhibit the growth of the spirochetes. *Leptospira* is highly sensitive to the destructive action of bile. Noguchi has found that the larvae and adults of the *Culex* mosquito, the larvae of the housefly and bluebottle fly, wood ticks and leeches cannot play the part of an intermediate host to the organism of infectious jaundice.

The discovery of the *Leptospira* in the urine of convalescents from infectious jaundice, among other related facts, has made it imperative to learn accurately what varieties of spirochetal organisms may normally find their way into the urine. One thinks quite naturally of the inhabitants of the genitalia. Noguchi[5] believes, as the result of extensive observations on men, that *Spironema refringens*, *Treponema calligyrum* and *Treponema minutum* represent practically all the spirochetal forms observed in the male smegma flora. A leptospira has never conclusively been shown to be present in specimens of normal urine or smegma. This fact, if further established, will facilitate diagnosis when foreign forms are observed.

Current Comment

OASES IN THE NATIONAL DESERT

Present indications are that Congress will pass legislation that will make the nation "dry." One point that does not seem to have occurred to our statesmen at Washington, in their admirable attempts to conserve the nation's resources, is the monstrous waste going on through the sale of highly alcoholized "patent medicines." There are on the market today a number of "patent medicines" containing from 15 to 25 per cent. of alcohol whose combined sales could only be expressed in millions of gallons. None of these products is admittedly sold for its alcohol content, and in most instances the manufacturers expressly deny that the alcohol is present for its drug effect. It is present as a "solvent," or is a "preservative" or "to prevent freezing"—anything but for its physiologic action. As an evidence of its marvelously potent medicinal qualities the manufacturer of one especially widely advertised product of this type has pointed to the number of carloads of his preparation that have been shipped into certain specific territories. Every pharmacist and every physician knows that the alleged medicinal virtues of these nostrums could, after their "extraction" by alcohol, be put up in solid form and the alcohol saved. Every retail druggist knows, however, that the vast majority of these preparations, were they put up in such form, would lose their power as "repeaters" and could be kept alive only by tremendously expensive advertising campaigns. The point of the whole question is that the impending legislation by Congress, while it will prohibit the manufacture and sale of alcoholic beverages, will not prevent the use of alcohol as a beverage, so long as nostrums whose most potent drug is alcohol are permitted to be sold unrestrictedly. As a prohibition measure the law may be a complete success; as a conservation measure it will leave much to be desired.

COCCIDIAL INFECTION IN MAN

Although coccidial infections in animals have been known for some time, little emphasis has ever been placed on the possible significance of a similar parasitic invasion of mankind. Latterly the publication of reports from various localities regarding the probable existence of human coccidiosis cannot fail to focus attention on the subject. The coccidia are a group of sporozoa which, during their trophic phases, are typically parasites of epithelial cells. The intracellular parasites have an asexual cycle within these cells in which reproduction is described to take place "by the process known as schizogony, and a succeeding sexual process involving the union of sexually differentiated gametes and spore formation within a cyst." Infection takes place through the ingestion of matter contaminated with the spores of the parasites, as happens in other instances of intestinal parasitism. The sporozoites are liberated from the sporocysts by the action of the digestive juices in the alimentary tract. Thereupon the sporozoites penetrate the membranes of the epithelium and come to rest in the cytoplasm of the cells, where they proceed to feed. Haughwout,[1] of the Department of Medical Zoology at the University of the Philippines, has thought it worth while to warn against the possible menace of coccidia. Several species of them have been found to infest the domestic and laboratory animals. Where hygienic conditions are not all that could be desired, it will thus be easy for infection to occur in man. The fear of this danger seems to be justified if we may trust new reports cited by Haughwout. They include what purport to be thirty-four well authenticated cases of human coccidiosis of recent occurrence. To this may be added the allegation of Castellani[2] that coccidiosis is comparatively common in the Balkans, numerous cases having been seen in the hospitals at Saloniki and in Macedonia. where conditions for transmission are doubtless highly favorable at the present period. Details of the various phases of the life cycle of these human protozoon parasites remain to be furnished by the pathologist and protozoologist. Haughwout states that the main thing the observer must be on his guard against is confusion of the cysts of helminths, particularly the eggs of trematodes and of hookworms, with coccidial cysts, and vice versa. From the few instances observed, it seems unlikely that ipecac and emetin compounds, on which reliance has been placed in infections with *Endameba histolytica,* will prove of any therapeutic value. In some cases at least the parasites seem to disappear from the stools without special treatment. Lime is said to exert the most destructive action on the cysts of any of the commonly used disinfectants. There is enough uncertainty in all these meager data to stimulate suitably situated investigators to a study of the diagnosis, treatment and prophylactic hygiene of an uncertain menace to human health.

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[4] Noguchi, Hideyo: The Survival of Leptospira (Spirochaeta) Icterohaemorrhagiae in Nature: Observations Concerning Microchemical Reactions and Intermediate Hosts, Jour. Exper. Med., 1918, **27**, 609.

[5] Noguchi, Hideyo: The Spirochetal Flora of the Normal Male Genitalia, Jour. Exper. Med., 1918, **27**, 667.

[1] Haughwout, F. G.: Infections with Coccidium and Isospora in Animals in the Philippine Islands and Their Possible Clinical Significance, Philippine Jour. Sc. (B), 1918, **13**, 79.

[2] Castellani: Jour. Trop. Med. and Hyg., 1917, **20**, 202.

EFFECT OF THE WAR ON FOREIGN MEDICAL JOURNALS

We have heretofore noted the effect of the war on our foreign exchanges, especially in the curtailment of space devoted to reading matter. We have also referred to the fact that the Italian journals were coming minus their advertising pages; those Italian journals which carried advertising matter on their covers are now omitting the covers. Our French exchanges received this week, however, are startling in their appearance. It seems that the French government has ordered that no advertising shall appear in any periodical to be sent out of the country. The *Nourrisson* and the *Paris médical* comply with the order by entirely blotting out all their advertising, so that the space hitherto devoted to advertising is simply stippled black. The *Presse médicale* complies with the order by leaving the space blank. As a result of this, the *Presse médicale* for June 20 carried nine and one-half pages of reading matter, and five and one-half pages blank. The object of the order is not stated. It certainly is not to save paper, or these French journals, while complying with the letter, would be violating the spirit of the order. It has been suggested that advertising space has been bought and used by the enemy for code messages.

BERIBERI AND CARBOHYDRATES

The demonstration of the particular physiologic significance of those properties of foods to which the word "vitamin" has been assigned has naturally led to several hypotheses regarding their rôle. Soon after the word "vitamin" was coined, it became something to conjure with. Some of the phenomena for which it was made responsible were little more than figments of the imagination. Others were established on a more probable basis of experimental observation. Among the views thus propounded was the thesis that a vitamin plays an active part in the metabolism of carbohydrates. It was based on the supposedly substantial observations of Braddon and Cooper[1] and of Funk[2] which they thought demonstrated that when birds were fed on polished rice or starch, with or without a fixed amount of antineuritic vitamin, the greater the proportion of carbohydrate in the food, the quicker was the onset of polyneuritis. Vedder[3] has clearly pointed out, in relation to a specific instance, how important it is from a practical as well as a purely scientific standpoint to ascertain the precise relation of the vitamins to metabolism. The dietotherapeutist engaged in the treatment or prevention of beriberi needs dependable information regarding the quantity of vitamin-yielding material to be supplied. Obviously, if the requisite proportion depends on the character of the diet and other incidental metabolic factors, a variable difficult to reckon with is thereby introduced. The latest experiments carried out by Vedder indicate that the antineuritic vitamin is not concerned in carbohydrate metabolism. Accordingly, in prescribing a diet to prevent beriberi, Vedder believes that it is sufficient to insure the consumption of such quantities of antineuritic foods—beans, rice polishings, barley, etc.—as experience has indicated will prevent the disease, without any reference to variations in the amount of carbohydrate consumed.

BASAL METABOLISM

The study of what is called the "basal metabolism" of persons under various conditions of age and in relation to different diseases has received considerable attention in recent years. The basal metabolism or, more strictly, the basal catabolism, is the exchange of matter that proceeds in the organism in a state of complete muscular rest and while the processes of digestion and absorption from the alimentary tract are completely suspended. Why this aspect of the energy transformations of the body should be important becomes clearer when one realizes that it represents the minimum of energy compatible with cell life under normal conditions. In a sense, it becomes an expression of the minimum food requirement of the organism; a surplus above this minimum may be utilized for muscular activity or give rise to a storage of matter and energy. As a unit for measuring the metabolism, the square meter of body surface, a dimension that can readily be calculated, is taken since it has been demonstrated that the heat output is essentially proportional to the superficial area of the individual. It has been shown in numerous experiments that the unit of surface area eliminates the same amount of heat in the normal adult, within 10 per cent. of a determined average. Armsby, Fries and Braman[4] of the Institute of Animal Nutrition at the Pennsylvania State College, who have recently calculated the mean daily basal metabolism per square meter of body surface, find that it appears not to differ greatly in man, cattle, swine and horses under comparable conditions. This surprising uniformity argues for the similarity of the fundamental metabolic processes in the higher animals. The unlike conditions of muscular activity and digestive performance introduce variable factors that make the total metabolism of the different species less easily compared under the conditions of ordinary active life.

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[1] Braddon and Cooper: The Influence of the Metabolic Factors in Beriberi, Part I, The Effect of Increasing the Carbohydrate Ration on the Development of Polyneuritis in Birds Fed on Polished Rice, Jour. Hyg., 1914, **14,** 331.

[2] Funk, Casimir: Die Rolle der Vitamine beim Kohlenhydratstoffwechsel, Ztschr. f. physiol. Chem., 1914, **89,** 378.

[3] Vedder, E. B.: Is the Neuritis-Preventing Vitamine Concerned in Carbohydrate Metabolism? Jour. Hyg., 1918, **17,** 1.

[4] Armsby, H. P.; Fries, J. A., and Braman, W. W.: Basal Katabolism of Cattle and Other Species, Jour. Agricultural Research, 1918, **13,** 43.

Medical Mobilization and the War

Uniform for Contract Surgeons

A new uniform for contract surgeons will be the same as that worn by commissioned officers, excepting that there will be no shoulder device, and the insignia to be worn on the collar will be the caduceus with the letters "CS" superimposed.

Increase in the Navy

On account of the increase of the strength of the Navy to 131,485 the Naval Medical Corps will be allowed two additional medical directors with the rank of captain and forty additional medical inspectors with the rank of commander. This will increase the allowance of officers of the Navy from 843 to 1,120.

Hospital in England for American Nurses

The War Council of the American Red Cross has appropriated $54,855 for the leasing, equipment and maintenance of a Red Cross hospital for American nurses in Great Britain on leave from France. The hospital will have a capacity of about fifty-five beds.

Army Surgeons to Meet

The Association of Military Surgeons of the United States will hold its annual meeting for 1918 at Camp Greenleaf, Fort Oglethorpe, Ga., October 13 and 15, under the presidency of Med. Dir. George A. Lung, U. S. Navy.

American Military Hospital Started

Work was commenced, June 27, on a large American military hospital near Salisbury, England, the site being a country estate of 200 acres purchased by the Red Cross. The contracts provide that the hospital shall be ready in six weeks with accommodations for 400 patients, but it is planned that the institution will eventually accommodate 3,000 patients.

Care of American Wounded

Almost the last of the American wounded of the recent German offensive who are to be moved from base hospitals in Paris to United States or to other hospitals in France for further treatment during convalescence left Paris, June 27, on an American hospital train. There are at present sixteen of these trains in service on the western front, each of which consists of sixteen large cars, built according to specifications drawn by Col. Percy L. Jones, M. C., U. S. Army, head of the American Ambulance Service. Each train has a maximum emergency capacity of 641 wounded, or of 340 if all are lying cases.

Another Base Hospital Publication

THE JOURNAL has just received number 7 of volume 1 of a publication issued by the base hospital at Camp Greene, N. C. It is entitled *The Caduceus* and is dedicated to the cause of world-wide justice. It is published every Saturday by the enlisted personnel of the base hospital, costing 5 cents per copy. The present issue contains eighteen pages, well illustrated. Such a publication is invaluable for its effect on the morale of the organization and for preservation as a permanent stimulus to memory of great periods in the lives of the men issuing it.

Budget Submitted

The American Red Cross Commission to Great Britain submitted a budget of its expenditures, from April 30 to June 30, amounting to $974,630.25. The largest single items were one of $238,500 for a hospital at an English port with an immediate capacity of 200 beds, and one of $100,700 for the purpose of establishing emergency depots in Ireland to meet relief needs in the case of disaster similar to the sinking of the *Tuscania*. Other items of importance are $109,710 for a line of communication camps covering the care of United States troops, $95,411 for rest camps and a hospital for American troops passing through England, $52,470 for convalescent homes for officers, with a capacity of 100 beds, and $47,700 for the installation and maintenance of a naval hospital for officers and men in London, with a capacity of fifty beds.

"Carry On"

The first number of *Carry On*—"a Magazine on the Reconstruction of Disabled Soldiers and Sailors"—is a well printed, well illustrated magazine of thirty-two pages. All of the signed articles are by nonmedical men and women, and are mainly devoted to telling what the disabled soldier and sailor—whether the disability is the loss of sight, limb or what not—may be able to do in spite of his condition. These articles give the optimistic side of what the future holds in store for the disabled, and what has been and is being done to make this optimism well founded. The illustrations show what has already been accomplished in making the disabled warriors of use in the world. The object of the Surgeon-General in publishing this magazine evidently is to awaken interest in the plans that are being outlined looking to the care of these men. Undoubtedly future numbers of the magazine will outline this work, and thus secure the interest, support and sympathy of the public in it. The magazine is circulated free, but the circulation will be confined to those who are sufficiently interested to write specifically and ask that they be put on the subscription list. Such requests should be addressed to "The Editor, *Carry On*, Surgeon-General's Office, U. S. Army, Washington, D. C."

Personnel of the Medical Department

For the week ending July 12, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 877, including 1 major-general, 65 colonels, 110 lieutenant-colonels, 298 majors and 403 lieutenants.

MEDICAL RESERVE CORPS: 21,370, including 1,481 majors, 6,102 captains and 13,787 lieutenants. On active duty: 19,489, including 1,403 majors, 5,598 captains and 12,488 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,195, including 22 lieutenant-colonels, 264 majors, 255 captains and 654 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 354, including 6 brigadier-generals, 85 colonels, 254 lieutenant-colonels, 8 majors and 1 captain.

THE DISCHARGES to date are:

Causes	Number		
	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	718	54
Inaptitude	0	274	21
Other branches of service	2	584	72
Resignations	0	182	34
Domestic troubles	0	60	0
Needed by community	1	50	0
Deaths	1	91	6
Dismissals	0	14	0
Duty completed	0	1	0
No reasons given	0	14	0
	4	1,988	190

Increased Rank for Medical Officers

The "rider" on the appropriation bill as finally passed states:

"*Increase in Medical Department:* That the Medical Department of the Regular Army be, and is hereby, increased by one assistant surgeon general, for service abroad during the present war, who shall have the rank of major general, and two assistant surgeon generals, who shall have the rank of brigadier general all of whom shall be appointed from the Medical Corps of the Regular Army.

"That the President may nominate and appoint in the Medical Department of the National Army, by and with the advice and consent of the Senate, from the Medical Reserve Corps of the Regular Army not to exceed two major generals and four brigadier generals.

"That the commissioned officers of the Medical Corps of the Regular Army, none of whom shall have rank above that of colonel, shall be proportionately distributed in the several grades as now provided by law.

"That the commissioned officers of the Medical Reserve Corps of the Regular Army, none of whom shall have rank above that of colonel, shall be proportionately distributed in the several grades as now provided by law for the Medical Corps of the Regular Army: Provided, That nothing in this act shall be held or construed so as to discharge any officer of the Regular Army or deprive him of a commission which he now holds therein."

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

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"That the commissioned officers of the Medical Reserve Corps of the Regular Army, none of whom shall have rank above that of colonel, shall be proportionately distributed in the several grades as now provided by law for the Medical Corps of the Regular Army: Provided, That nothing in this act shall be held or construed so as to discharge any officer of the Regular Army or deprive him of a commission which he now holds therein."

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G. R. Roberts, Philadelphia
M. Rosen, Philadelphia
G. G. Ross, Philadelphia
C. M. Shaar, Philadelphia
R. D. Sample, Philadelphia
R. A. Schless, Philadelphia
C. D. Stull, Philadelphia
W. J. Thuium, Philadelphia
J. B. McConnaughy, Pittsburgh
A. E. Burke, Scranton
C. D. Miller, Scranton
F. L. Conwell, Tarentum
R. D. Hostetter, York

RHODE ISLAND

G. Houston, Crompton
V. E. Bablington, Edgewood
C. J. C. Gillon, Newport
W. P. Buffum, Providence
L. S. Gilpatrick, Providence
F. V. Hussey, Providence
F. H. Mathews, Providence
J. H. Morrissey, Providence

SOUTH CAROLINA

G. E. Rice, Belton
M. W. Beach, Charleston
J. B. Latimer, Charleston
A. F. Mahoney, Clio
R. H. Dubose, Darlington
L. W. Anderson, Donora
E. P. Pendergrass, Florence
S. J. Blackman, Kershaw
B. R. Johnston, Luray

SOUTH DAKOTA

T. S. Johnson, Cheyenne Agency

TENNESSEE

C. H. Sanford, Dyer
E. Lewis, Memphis
J. J. McCaughan, Memphis
N. B. Norris, Memphis
H. E. Friedman, Nashville
H. L. Klein, Nashville

TEXAS

O. Davis, Anderson
H. L. Farmer, Comanche
M. L. Stubblefield, Carbon
L. T. Miller, Dallas
A. M. Kahn, Denison
J. J. Horton, Grand Prairie
R. L. McLaughlin, Granger
W. S. Barcus, Hillsboro
G. C. Lechenger, Houston
W. C. Lyon, Houston
L. McK. Smith, Martin
H. T. Hayes, Midway
S. F. Harrington, Plano
W. J. Shuddemagen, Sabinal
R. B. Anderson, Sequin
W. S. Bunkley, Stamford
I. Pope, Jr., Tyler
L. J. Boyd, Winnsboro

UTAH

T. G. Odell, Lark

VERMONT

R. F. Andrews, Burlington
H. H. Leffler, Burlington
F. P. Dinwell, East Calais
A. E. Perley, Richford
F. H. Gebhardt, Rutland

VIRGINIA

J. F. Terrell, Ashland
M. W. Baker, Charlottesville
W. W. Rixey, Charlottesville
J. C. Bradley, City Point
F. H. Lee, City Point
E. L. Griffith, Clifton Forge
F. P. Gardner, Covington
H. B. Burns, Dallas Center
G. H. Snead, Fork Union
J. D. Clements, Gloucester
R. B. Blackwell, Hopewell
E. W. Buckingham, Lynchburg
G. B. Dudley, Martinsville
R. W. Lewis, Norfolk
W. F. Crouse, Portsmouth
C. D. Allen, Richmond
C. H. Fowlkes, Richmond
F. S. Johns, Richmond
H. R. Phinney, Jr., Richmond
W. A. Simpson, Richmond
W. W. S. Butler, Roanoke
L. H. Justis, Roanoke
T. E. Armstrong, South Boston
W. L. Drewry, Wakefield

WASHINGTON

J. M. Lea, Biglake
T. B. N. Murphy, Oakesdale
F. J. Clancy, Seattle
J. S. McBride, Seattle
R. J. McCurdy, Seattle
H. C. Blair, Tacoma

WEST VIRGINIA

J. A. Saunders, Alpoca
W. H. Greene, Camden
C. F. McCuskey, McMechen
S. A. Hardman, Weston

WISCONSIN

R. J. Leutsker, Antigo
L. T. McNicholas, Athens
I. D. Tiedemann, Desota
E. C. McGill, Madison
J. A. Opstedal, Madison
E. D. Angell, Milwaukee
A. H. Frankel, Milwaukee
G. H. Larson, Pewaukee
C. N. Colbert, Racine
T. C. Hemmingsen, Racine
C. O. Rogne, Sawyer

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Beauregard, Alexandria, La., base hospital, from the Surgeon-General's Office, Major EDGAR E. HUME.

To Camp Shelby, Hattiesburg, Miss., as assistant to camp surgeon, from Camp Zachary Taylor, Major HARRY L. ARNOLD. For duty, from New Orleans, Capts. DAVID L. HILL, DON C. McCLELLAND, OTIS McQUOWN. Lieuts. FRED B. HICKSON, DORSEY M. HINES, RODNEY E. TROUTMAN, ALLEN H. WALKER, ADRIAL C. WEAKLEY.

To Camp Travis, Fort Sam Houston, Texas, as assistant to camp surgeon, from Southern Department, Lieut. ABRAM L. VAN METER.

To Fort Thomas, and *Camp Zachary Taylor*, Louisville, Ky., *Camp Wadsworth*, Spartanburg, S. C., and *Camp Greene*, Charlotte, N. C., for conference, and on completion *to his proper station*, Lieut.-Col. MAJOR G. SEELIG.

To Hoboken, N. J., for duty, from Camp. Greene, Lieut.-Col. WILLIAM L. SHEEP.

To Philadelphia, Pa., and *New York City,* for duty, and on completion *to his proper station,* Lieut.-Col. WILLIAM L. HART.

To Rochester, Minn., Mayo Clinic, as instructor, from Washington, Col. WILLIAM J. MAYO.

Resignation of Lieut. FLOYD A. THOMAS accepted.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Beauregard, Alexandria, La., base hospital, Capt. EDWIN V. CALDWELL, *Huntsville.*

To Camp Dix, Wrightstown, *N. J., for duty, from New Orleans,* Lieut. SOLON W. WRIGHT, Bessemer.

To Camp Wheeler, Macon, Ga., base hospital, Capt. ENOCH M. MASON, Birmingham.

To Fort Oglethorpe for instruction, Capt. WALTER A. GRESHAM, Russellville.

Arkansas

To Camp Dix, Wrightstown, *N. J., for* duty, from Fort Riley, Lieut. FELTON W. LANDRUM, Duggs.

To Camp Dodge, Des Moines, Iowa, for duty, *from Camp Beauregard,* Major LOYD THOMPSON, Hot Springs.

To Fort Oglethorpe for instruction, Lieut. WALTER K. GRAY, Little Rock.

California

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. ERNEST C. GRINER, San Francisco.

To Camp Dodge, Des Moines, Iowa, *base hospital, from* New York City, Lieut. ROBERT A. POWERS, *San Francisco.*

To Camp Lewis, American Lake, Wash., for duty, Capt. ALEXANDER H. McLEISH, Stockton; Lieuts. THEODORE C. SHNEERER, *Los* Angeles; *FRANK C. PEIRSOL,* Mendocino City; JOSEPH A. *THIBODEAU, ROBERT* W. WILCOX, San Francisco.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Camp Custer, Major *PERCIVAL* G. WHITE, Los Angeles.

To report by wire to the commanding general, Western Department, for assignment to duty, Capt. EDWARD W. TWICHELL, Sacramento.

To San Francisco, Cal., Letterman General Hospital, for temporary duty, Capt. THOMAS C. BURGER, San Diego.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. BRUCE McV. MAKCALL, San Francisco.

Colorado

To Camp Crane, Allentown, Pa., base hospital, Lieut. ROSS W. JOHNSON, Denver; from Camp Kearney, Capt. LEWIS M. VAN METER, Denver.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. JULIAN C. KENNEDY, GEORGE B. LEWIS, Denver.

Connecticut

To Camp Custer, Battle Creek, Mich., base hospital, Capt. ALBERT E. AUSTIN, Sound Beach.

Resignation of Capt. CARL W. HENSE, New Haven, accepted.

District of Columbia

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from the Surgeon-General's Office, Major WILLIAM G. ERVING, Washington.

Florida

To Fort Oglethorpe for instruction, Lieut. FREDERICK J. AUWERS, Oakland.

Georgia

To Camp Dix, Wrightstown, N. J., base *hospital,* Lieut. CHARLES M. MASHBURN, Atlanta.

To Fort Oglethorpe for instruction, Lieuts. LEROY C. PARHAM, Chipley; MARCUS L. HICKSON, Fort Valley.

Idaho

To Fort Oglethorpe for instruction, Capt. FRANCIS L. QUIGLEY, Wallace.

To Fort Riley for duty, from Prairie View, Texas, Lieut. VONANDO G. LOGAN, *Rockland.*

Illinois

To Camp Custer, Battle Creek, Mich., base hospital; Lieut. DONET F. MONACO, Chicago.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieuts. FRANK DEASON, Bush; ANTHONY B. ZWASKA, Rockton; CHRISTOPHER B. STUART, Springfield; from New Orleans, Lieut. JOHN W. McGUIRE, Chicago.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. MAYER S. COFFLER, Chicago.

To Camp Grant, Rockford, Ill., base hospital, *Lieut.* LEONARD J. MURPHY, Fairland.

To Camp Lewis, American Lake, Wash., for duty, from *Fort Riley,* Lieut. ADOLPH D. TOLLEFSEN, Chicago.

To Camp McClellan, Anniston, Ala., base hospital, Capt. LEON M. BOWES, *Norwood Park;* Lieuts. ALBERT H. CARTER, *Chicago;* JESSE A. De FREITAS, Springfield.

To Camp Meade, Admiral, Md., base hospital, from Camp Beauregard, Major THOMAS A. WOODRUFF, Chicago.

To Camp Pike, Little Rock, Ark., base hospital, Lieut. JOSEPH L. NORTELL, Chicago.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. ALVIN THOMPSON, Chicago.

To Camp Wadsworth, Spartanburg, S. C., base hospital, *Lieut.* WILLIAM A. O'CONNOR, Chicago.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. NORMAN C. W DDELL, Cooks Mills.

To Chicago, Ill., for instruction, Lieut. JOHN MITCHELL, Chicago.

To Fort Des Moines, Iowa, base hospital, Capt. *RUFUS* W. BISHOP, Chicago.

To Fort Logan H. Roots, Ark., base hospital, Lieut. HARRY A. SULLIVAN, Rockford.

To Fort Oglethorpe for instruction, Capt. WILLIAM E. SHACKLETON, Lieuts. CLARENCE R. CHOUINARD, ALBERT G. GRAN, Chicago.

To Fort Snelling, Minn., for duty, from Camp Grant, Capt. LOUIS J. PRITZKER, Chicago.

To Fort Worth, Texas, Signal Corps Aviation School, from Camp Sevier, Major ARTHUR F. STOTTS, Galesburg.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. JOHN R. BRYAN, West Point.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Dodge, Capt. WILLIAM K. MURRAY, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EDWARD T. *ROBINSON,* Chicago.

Resignation of Lieuts. THOMAS P. *RANNEY,* Chicago, and JOHN E. BURNS, New Dennison, accepted.

The following order has been revoked: *To Camp Pike,* Little Rock, Ark., for duty, Lieut. EDWARD H. WARZEWSKI, Chicago.

Indiana

To Camp Custer, Battle Creek, Mich., base hospital, *Capt.* WILLIAM J. NORTON, Hope.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. REUBEN A. SOLOMON, *Indianapolis.*

To Camp Hancock, Augusta, Ga., for duty, Lieuts. ARTHUR L. OILAR, Russiaville; LEONARD P. COLLINS, Winamac.

To Camp MacArthur, Waco, *Texas, for* duty, from Camp Travis, Capt. ETHAN A. ISH, Waterloo.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. EDWIN R. CHURCHELL, Richmond.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Capt. LINLEY M. REAGAN, Tipton.

To Fort Oglethorpe for instruction, Capt. WILLIAM E. NICHOLS, Hammond; Lieuts. FRED H. FINLAW, *Arlington; FRANCIS* M. DICKASON, Bluffton; BYRON J. WYLAND, *Mishawaka.*

To Fort Sam Houston, Texas, base hospital, Capt. HARRY ELLIOTT, Brazil.

To Washington, D. C., for duty, Lieut. WILLIAM A. HOLLIS, Hartford City.

Iowa

To Allesandro, Calif., as flight surgeon, from Mineola, Capt. MURDOCH BANNISTER, Ottumwa.

To Camp Dodge, Des Moines, Iowa, *base hospital,* Capt. ALBERT H. MYERDICK, Mt. Pleasant; Lieuts. ALBERT A. SCHULTZ, Fort Dodge; AUSTIN C. DAVIS, Iowa City; GUY A. LOTT, St. *Ansger.*

To Camp Lewis, American Lake, Wash., base hospital, Lieut. LORAN M. MARIN, Fort Dodge.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. CHARLES W. TIDBALL, Independence.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. WILLIAM C. NEWELL, Ottumwa.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. CHARLES D. MARTIN, Davenport.

To Fort Oglethorpe for temporary duty, Lieut. WALTER H. GRIMWOOD, Fort Madison.

To Fort Riley for instruction, Lieut. HAROLD A. *HOUSEHOLDER,* Winthrop.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Sevier, Lieut. OTTO J. BLESSIN, Postville.

Honorably discharged on account of physical disability not incident to the service, Lieut. CYRIL G. FIELD, Humboldt. On account of physical disability existing prior to entrance into the service, Lieut. WALTER G. FINLEY, Mondamin.

Kansas

To Camp Dix, Wrightstown, N. J., for duty, from New Orleans, Lieut. ALBERT M. DAWSON, Topeka.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOHN L. WORK, Topeka.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. WILLIAM W. REED, Blue Rapids.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. WILLIAM R. BRADY, Parsons.

To Fort Oglethorpe for instruction, Lieut. JOSEPH H. MARKS, Valley Falls.

To Fort Riley for instruction, Lieut. ANSON B. INGELS, Larned.

To the inactive list, from Fort Lawton, Wash., Capt. CHARLES E. BROWN, Leavenworth.

Resignation of Lieut. HENRY D. BRUNIG, Hillsboro, accepted.

Kentucky

To Camp Shelby, Hattiesburg, Miss., base hospital, Capts. ROBERT L. WOODARD, Hopkinsville; HARRY C. WOODARD, Louisville; from Camp Cody, Lieut. HARRY E. McCORD, Ludlow; *from* Camp Gordon, Lieut. JOHN B. FLOYD, Louisville; *from* Camp Zachary Taylor, *Major* SIDNEY J. MEYERS, Louisville.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from *Fort* Oglethorpe, Capt. OSCAR E. BLOCH, Louisville.

To Fort Oglethorpe for instruction, Lieut. PETER MEIER, Covington.

Louisiana

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. WILLIAM L. STEWART, Collock.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. *ARTHUR* L. WHITMIRE, New Orleans.

To Camp Joseph E. Johnston, Jacksonville, Fla., as a member of the tuberculosis examining board, from New Haven, Lieut. BEN R. *HENINGER,* New Orleans.

To Camp Pike, Little Rock, Ark., for duty, *from* Fort Oglethorpe, Lieut. DAWSON T. MARTIN, Acy.

Maine

To Camp Sherman, Chillicothe, Ohio; *Camp Custer,* Battle Creek, Mich.; *Camp Grant,* Rockford, Ill., and *Camp Zachary Taylor,* Louisville, Ky., for conference, and on completion *to his proper station,* from Camp Gordon, Major WILLIAM L. COUSINS, Portland.

Maryland

To Army Medical School for duty, from Camp Meade, Lieut. *RALPH* S. STAUFFER, Hagerstown.

To Camp Meade, Admiral, Md., with the board examining the command for nervous and mental diseases, Capt. ANDREW C. GILLIS, Baltimore.

To Fort McHenry, Md., for temporary duty, from Washington, Lieut. FRANK N. OGDEN, Sykesville.

Massachusetts

To Boston, Mass., for duty, Capt. HUBERT T. HOLLAND, Boston.

To Camp Devens, Ayer, Mass., base hospital, Lieut. FRANCIS G. BRIGHAM, Boston. With the board examining the command for nervous and mental diseases, from Camp Upton, Capt. RANSOM A. GREENE, Palmer.

To Fort Oglethorpe for instruction, Lieuts. ARTHUR B. HOLMES, Kingston; ARCHIBALD P. GARDNER, Lowell; WILLIAM L. FRASES, Lynn.

To the inactive list, from Camp Meade, Major SAMUEL J. MIXTER, Boston.

Honorably discharged, Lieut. WILLIAM T. McMAHON, Pittsfield.

Michigan

To Camp Dix, Wrightstown, N. J., for duty, from Camp Pike, Lieut. LEON J. GIBSON, Bay City.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. OTTO L. RICKER, Cadillac.

To Camp McClellan, Anniston, Ala., base hospital, Capt. WILLIAM F. ACKER, Monroe.

To Camp Zachary Taylor, Louisville, Ky., with the board examining the command for nervous and mental diseases, from Camp Wadsworth, Lieut. HEINRICH A. REYE, Detroit.

To Fort Oglethorpe for instruction, Lieuts. MOSE M. HYMAN, Detroit; WILLIAM L. MACCANI, Ironwood.

To Rockefeller Institute for instruction in the treatment of infected wounds, from New York City, Lieut. GLENN B. CARPENTER, Detroit.

Resignation of Capt. BEVERLEY D. HARISON, Detroit, and Lieut. FREDERICK C. THIEDE, Monroe, accepted.

Minnesota

To Army Medical School for duty, from Camp A. A. Humphreys, Lieut. RALPH R. SIMMONS, Rochester.

To C[illegible] J., for duty, from New Orleans, Lieut. [illegible], Red Wing.

To C[illegible]va, base hospital, Lieut. MONTO C. PIPER, Sanborn.

To Camp Grant, Rockford, Ill., base hospital, from New York City, Lieut. EDWARD V. E. MASTIN, Rochester.

To Camp Jackson, Columbia, S. C., for duty, from Chicago, Lieut. ADOLPH E. DETUNCQ, Preston.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. GEORGE L. JOHNSON, Newfolden.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. EARL W. GILREY, Minneapolis.

Mississippi

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. JAMES McE. GUTHRIE, Meridian.

Missouri

To Brownsville, Texas, base hospital, from McAllen, Texas, Lieut. MICHAEL J. OWENS, Kansas City.

To Camp Beauregard, Alexandria, La., base hospital, Capt. GUY TITSWORTH, Sedalia; GEORGE McC. BOTELER, St. Joseph.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. ERNEST MITCHELL, La Monte.

To Camp Dodge, Des Moines, Ia., base hospital, Capts. JACOB M. EPSTEIN, FRANK J. KREBS, St. Louis; BUNN A. DUNBAULD, Webb City.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Snelling, Major ROBERT BURNS, Jr., St. Louis.

To Camp Lee, Petersburg, Va., for duty, from Hoboken, Capt. JOHN P. BEESON, South West City.

To Camp Lewis, American Lake, Wash., for duty, Lieut. WALTER C. KLEIN, Kansas City; from Fort Riley, Lieuts. REGINALD C. McD. MILLER, Foristell; FRANK B. HILLER, ARTHUR C. LEONARD, Kansas City; WALDO H. WILL, Mehlville.

To Camp Logan, Houston, Texas, base hospital, Lieut. LUTHER S. JAMES, Blackburn.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. LESLIE E. DEAN, Marysville.

To Camp McClellan, Anniston, Ala., base hospital, Capt. AUGUST G. WICHMANN, St. Louis.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. NATHANIEL SAENGER, St. Louis.

To Fort Oglethorpe, base hospital, from Camp Jackson, Lieut. HARRY W. SCHUMACHER, St. Louis. For instruction, Lieut. ELIJAH A. SCOTT, St. Louis.

To Fort Riley for instruction, Lieut. ELMER E. KEARNEY, Oregon.

To Houston, Texas, Signal Corps A[illegible] surgeon, from Mineola, Capt. THEODORE S. [illegible] City.

To Newport News, Va., for temporary duty, Capt. HENRY H. LOOK, Kansas City.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, Capt. RUDOLPH BUHMAN, St. Louis.

Resignation of Lieut. GEORGE W. H. PRESNELL, Sikeston, accepted.

Montana

To Camp Grant, Rockford, Ill., base hospital, Capt. FREDERICK M. POINDEXTER, Dillon.

To Camp Lewis, American Lake, Wash., for duty, Lieut. ARTHUR S. NEEDLES, Scobey.

To Fort Riley for instruction, Lieut. GEORGE A. WINDSOR, Livingston.

Nebraska

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. NEILL J. EVERITT, Omaha.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. GEORGE H. DEMAY, Wilsonville.

To Fort Oglethorpe for instruction, Capt. ISAAC L. BOGEN, Lincoln.

To Fort Riley for instruction, Capt. JOHN G. W. WESTERHOFF, Carleton.

To Fort Sill, Okla., base hospital, Lieut. JAMES S. McAVIN, Omaha.

To Hoboken, N. J., base hospital, Capt. JUSTUS E. OLSSON, Lexington; Lieut. GEORGE H. WALKER, Lincoln.

Nevada

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. HALLE L. HEWETSON, Las Vegas.

New Jersey

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. RALPH J. VREELAND, Clifton.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. BENJAMIN F. SEAMAN, Raritan.

To Camp Joseph E. Johnston, Jacksonville, Fla., as a member of the tuberculosis examining board, Lieut. SAMUEL BARISHAW, Jersey City.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Capt. WILLIAM H. SLOCUM, Long Branch.

To Fort Oglethorpe for instruction, Capt. EDWARD W. MARKENS, Newark.

To Hoboken, N. J., for temporary duty, from Camp Meade, Capt. [illegible], Newark.

[illegible], *N. Y.*, Signal Corps Aviation School, for duty, from Princeton, Capt. ANTHONY C. ZEHNDER, Newark.

To report by wire to the commanding general, Eastern Department, for assignment to duty, Capt. CHARLES H. PURDY, Jersey City.

Resignation of Lieut. ERNESTO CASINI, Garfield, accepted.

New Mexico

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. WILLIAM G. BASSETT, Des Moines.

New York

To Camp [illegible], Va., as orthopedic surgeon, from Arm[illegible]NTHONY MANGIARCINA, Brooklyn; [illegible]ew York.

To Camp [illegible] *Camp Grant*, Rockford, Ill., *Camp Dod*[illegible]*chary Taylor*, Louisville, Ky., and *Camp* [illegible]nference, and on completion *to his proper station*, from Williamsbridge, Major JOHN E. JENNINGS, Brooklyn.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. LOUIS F. KNOLL, Brooklyn.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. EDWARD L. FROST, Buffalo.

To Camp MacArthur, Waco, Tex., for duty, from Camp Travis, Major JOHN T. SPRAGUE, Staten Island.

To Camp Meade, Admiral, Md., base hospital, from Hoboken, Capt. MARK L. FLEMING, New York.

To Camp Pike, Little Rock, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. HERBERT ADLER, New York.

To Camp Upton, L. I., N. Y., base hospital, Capt. EDWARD W. JONES, Watertown; Lieuts. JAMES F. CROCE, ARMIN V. ST. GEORGE, New York.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. JOSEPH E. NOLL, New York.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. CARL G. ZIMMERMAN, Elmira.

[illegible]base hospital, from Camp Upton, Capt. HENRY [illegible]

[illegible] temporary duty, from Fort Oglethorpe, Lieut. [illegible], New York.

[illegible]or duty, Lieut. MAX J. FEIN, Brooklyn.

To Fort Oglethorpe for instruction, Capt. THOMAS H. ORSER, Cold Brook; Lieut. ROBERT J. SHEA, New York.

To Hoboken, N. J., base hospital, from Camp Hancock, Lieut. BENJAMIN F. CARMEL, Brooklyn; from Camp Upton, Lieut. WILLIAM H. [illegible]

To Mine[illegible]orps Aviation School, for duty, from Fort [illegible], New York.

To New [illegible]pts. FREDERICK J. BOWEN, Mount Morris, EDGAR C. JOYCE, New York.

To Plattsburg Barracks for temporary duty, and on completion *to his proper station*, from Fort Porter, Capt. JOHN GURNEY STOWE, Buffalo.

To report by wire to the commanding general, Eastern Department, [illegible] CHARLES L. RANDALL, Franklinville; [illegible]

[illegible] duty, Capts. CLARENCE C. COR[illegible] ORCHARD, Rochester; from Camp [illegible], New York. [illegible] VIRDEN, New York, accepted. [illegible]s been [illegible], *N. J.*, for du[illegible] WEST, New York.

North Carolina

To Army Medical School for instruction, Lieut. JOHN H. BULLOCK, Oxford.

To Fort Oglethorpe for duty, from Camp Upton, Lieut. JACOB H. ROSZELLE, Salisbury. For instruction, Lieut. RICHARD F. YARBOROUGH, Louisburg.

To New Haven, Conn., for duty, from Camp Lee, Capt. BENJAMIN K. HAYS, Oxford.

To West Point, Miss., Signal Corps Aviation School, for duty, from Camp Sevier, Lieut. JULIUS J. BAREFOOT, Graham.

North Dakota

To Camp Grant, Rockford, Ill., base hospital, Lieut. WILLIAM H. WITHERSTINE, Grand Forks.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOHN A. JOHNSON, Grand Forks.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. LESLIE G. EASTMAN, Hazen.

To Fort Riley for instruction, Lieut. CHARLES A. SWANSON, Jamestown.

Ohio

To C[illegible]a, La., for duty, from Fort Riley, Lieut. [illegible]Cincinnati.

To C[illegible] for duty, from Fort Riley, Lieut. GALE [illegible]

To C[illegible], Mich., base hospital, Lieut. CLARENCE T. BAHLER, Walnut Creek.

To Camp Devens, Ayer, Mass., base hospital, Lieut. EDGAR C. STEINHARTER, Cincinnati.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. GEO. M. KRIEGER, Cincinnati.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. CAMERON A. LEATHERMAN, Dayton.

To Camp Kearney, Linda Vista, Calif., base hospital, from New York, Lieut. HENRY SNOW, Jr., Norwood.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieuts. OTTO J. OWENS, Ottawa; CHARLES FABER, Toledo.

To Camp McClellan, Anniston, Ala., base hospital, Capt. FREDERICK W. HITCHINGS, Cleveland; Lieuts. DENEVIN SANDOE, Columbus; ALFRED H. POTTER, Springfield.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. ROBERT G. NOBLE, Columbus; Lieut. WILLIAM H. STEELE, Montpelier.

To Fort Oglethorpe for instruction, Lieut. HORACE D. PRICHARD, Cleveland.

To Fort Sill, Okla., for duty, from Mineola, Lieut. FRANK S. VAN DYKE, Columbus.

To Hot Springs, N. C., for temporary duty, and on completion *to Fort Oglethorpe* for duty, from Fort Oglethorpe, Capt. HIRAM P. H. ROBINSON, Medina.

The following order has been revoked: *To Camp Sherman*, Chillicothe, base hospital, Lieut. DAVID H. COLEMAN, Cincinnati.

Oklahoma

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. EDWARD S. WEAVER, Dill.

To Camp Devens, Ayer, Mass., base hospital, Lieut. WANN LANGSTON, Oklahoma City.

To Camp Logan, Houston, Texas, base hospital, Lieut. JOHN B. LEISURE, Watonga.

To Fort Bliss, Texas, as orthopedic surgeon, from Fort Sam Houston, Lieut. JOHN A. WALKER, Shawnee.

To Fort Riley for instruction, Lieuts. ELMER J. REICHLEY, Helena; ISAAC W. BALLINGER, Henryeytta; CHARLES B. SEXTON, Stillwater.

To Lonoke, Ark., Signal Corps Aviation School, for duty, from Camp Greene, Lieut. CHARLES D. BLACHLY, Drumright.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. RANDOLPH L. MONTGOMERY, Marlow.

Honorably discharged, Lieut. ROBERT S. RILEY, Hartshorne. On account of physical disability existing prior to entrance into the service, Lieut. WILLIAM J. OMER, Thomas.

Oregon

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. ARTHUR W. BOSLOUGH, Ashland; WILLIAM H. POLLARD, Springfield.

Pennsylvania

To Army Medical School for duty, from Camp A. A. Humphreys, Lieut. FRED B. HARRINGTON, Pittsburgh; from Camp Meade, Capt. WILLIAM H. BAILEY, *Philadelphia*. For instructions, Lieut. JOHN R. DAVIES, Jr., Philadelphia.

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from Army Medical School, Lieut EDGAR B SLOTERBECK, Monessen.

To Camp Alfred Vale, Little Silver, N. J., to make nervous and mental examinations, and on [illegible] *proper station*, from Camp Dix, Capt. PERCY DE [illegible].

To Camp Custer, Battl[illegible] hospital, Capt. CHARLES M. ADAMS, Pittsburgh; Lieut. CLYDE B. LAMP, McKeesport.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. HAROLD H. LAMB, Braddock; GEORGE P. MEYER, Philadelphia. For duty, from New Orleans, Lieut. JAMES W. SILLIMAN, Bradenville.

To Camp Gordon, Atlanta, Ga., base hospital, from New Haven, Capt. ISAAC H. ALEXANDER, Philadelphia.

To Camp Sevier, Greenville, S. C., for duty, from Camp Custer, Major THOMAS W. JACKSON, Philadelphia.

To Camp Wheeler, Macon, Ga., base hospital, Lieuts. RALPH E. LEIDY, Boyertown; ERLE G. HAWMAN, Reading; FRANKLIN F. MASSEY, Wernersville. For duty, from Fort Oglethorpe, Lieuts. GUY E. DUTTER, JOHN H. WOOLRIDGE, Philadelphia.

To Fort Oglethorpe for instruction, Capt. ABRAHAM K. WANNER, Reading; Lieuts. RALSTON O. GETTEMY, Keffer; WILLIAM H. KOHLER, Milroy; PERCY A. BAY, Muncy Valley.

To New Haven, Conn., for duty, Capt. JAMES S. CRAWFORD, Pittsburgh.

To Rockefeller Institute for instruction in bacteriology, and on completion *to his proper station, from Camp Dix, Lieut.* CHARLES W. LUDERS, Cynwyd.

To Williamsbridge, N. Y., for duty, Capt. HARRY H. PENROD, Johnstown.

Resignations of Major HIRAM R. LOUX, Philadelphia; Capt. DAVID C. VOSLER, Ellwood City, and Lieut. ABRAHAM E. OLIENSIS, Philadelphia, accepted.

Rhode Island

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. JAMES M. McCARTHY, Woonsocket.

South Carolina

To Fort Oglethorpe for instruction, Capt. JAMES L. BOLT, Easley; Lieuts. J[illegible]ranchville; LAWRENCE S. FULLER, Jr., Lau[illegible]NG, WILLIAM S. JUDY, St. George.

Resignation of Lieut. JOHN M. BEARDEN, *Laurence*, accepted.

South Dakota

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. LYLE HARE, Spearfish.

To Camp Lewis, American Lake, Wash., *for duty, from* Fort Riley, Capt. JOHN W. BRACKETT, Sturgis; Lieut. DEWEY SUTTON, Redfield.

To Fort Riley for instruction, Lieut. JOHN S. TSCHETTER, Huron.

Tennessee

To Camp McClellan, Anniston, Ala., base hospital, Capt. MATTHEW G. BUCKNER, Nashville.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp Beauregard, Capt. WILLIAM A. CARNES, Memphis.

To Fort L. H. Roots, Ark., base *hospital, Lieut.* WILLIAM H. NILES, Tellico Plains.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. THOMAS F. MILLER, Knoxville.

Resignation of Capt. WILLIAM P. ATCHLEY, Knoxville, accepted.

The following order has been revoked: *To Camp Wadsworth*, Spartanburg, S. C., for duty, Lieut. LEROY S. McMULLEN, Knoxville.

Texas

To Camp Beauregard, Alexandria, La., base hospital, Capt. THOMAS N. GOODSON, San Antonio; Lieut. THOMAS M. JARMON, Terrell.

To Camp [illegible] for duty, from Fort Riley, Lieut. WILLIAM [illegible].

To Camp [illegible] Fla., for duty, from Fort Riley, Lieut. [illegible]ilene.

To Camp [illegible]tant to camp surgeon, from Fort Sam Houston, Capt. LYTTON G. AMENT, Victoria. *For duty*, from Fort Oglethorpe, Lieut. CHARLES M. McMILLAN, Plantersville.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. [illegible] W. REEVES, Houston.

To Camp Shelby, Hattiesburg, *Miss.*, *base hospital*, Lieut. FREDERICK W. FRANCIS, Fort Worth.

To Fort Riley for instruction, Lieuts. BENJAMIN F. RHOADES, Brackenbridge; JAMES W. STEVENS, Trenton.

To Prairie View, Texas, to make physical examinations and give medical attention to drafted *men, and* on completion *to his proper station*, from Fort Riley, Lieut. ALLEN M. BAKER, Carthage.

To Rockefeller Institute for instruction in bacteriology, and on completion *to his proper station*, from Camp Hancock, Capt. CHARLES B. McGLUMPHY, Galveston.

Resignation of Lieut. NICHOLAS C. BOETHEL, Leroy, accepted.

Utah

To *Camp Dix*, Wrightstown, N. J., for duty, from Fort Riley, Lieut. GEORGE W. HANKS, Lehi; from New Orleans, Capt. WALTER E. WHALEN, Ogden.

Vermont

To Fort Oglethorpe for instruction, Capt. SIMON G. START, Cambridge; Lieut. HAROLD L. WILLIAMSON, Bristol.

Virginia

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from Army Medical School, Lieut. MARSHALL L. BOYLE, Jr., Richmond.

To Camp Dix, Wrightstown, N. J., for duty, Major SAMUEL B. MOORE, Alexandria.

Washington

To Camp Grant, Rockford, Ill., base hospital, from Vancouver Barracks, Capt. WALLACE A. PRATT, Walla Walla.

To San Francisco, Calif., for duty, from Alcatras, *Calif.*, Capt. FRANK H. COLLINS, Goldendale.

West Virginia

To Camp Dix, Wrightstown, N. J., for duty, from New Orleans, Lieut. RECE M. PEDICORD, *Elm Grove*.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. HARRY H. YOUNG, Charleston.

To Camp Lee, Petersburg, Va., base *hospital, Lieut. ARTHUR* E. BAYS, Barboursville.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. JAMES M. FONTAINE, Charlestown.

To Fort Oglethorpe for instruction, Lieut. BENJAMIN H. HILDRETH, Worthington.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. JAMES W. HARTIGAN, *Morgantown*.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Fort McPherson, Ga.*, for duty, Lieut. BOAZ B. COX, Morgantown.

Wisconsin

To Camp A. A. Humphreys, Accotink, Va., with the board examining the troops for tuberculosis, from Camp Laurel, Capt. LEON H. FLANCHER, Milwaukee.

To Camp Grant, Rockford, Ill., base hospital, Capts. HARRY M. KAY, Madison; PHILIP A. FOX, Milwaukee; GIDEON BENSON, Richland Center; Lieut. HUGH C. RUSSELL, Milwaukee.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Capt. ARTHUR E. WINTER, Tomah; Lieut. LOUIS M. PEARSON, Tomahawk.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Capt. CHRISTIAN U. SENN, Ripon. For duty, from Fort Riley, Major WILLIAM W. PRETTS, Platteville.

To Fort Riley for instruction, Lieut. WAYNE A. MUNN, Janesville.

To New Haven, Conn., for duty, Lieut. EDWARD P. ALLEN, Waukesha.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EMMETT W. BOWEN, *Watertown*.

Danger from Thymol with Thyroid Disease.—A recent article by E. Edens in the *Medizinische Klinik*, 1917, No. 30, is summarized by the *Correspondenz-Blatt* to the effect that severe clinical symptoms from thymol were observed in two cases of thyroid disease. In one woman the thyroid had atrophied, and after taking thymol she developed severe spasms of the esophagus and stomach, with exhaustion and anemia. In the other case a woman of 48 had been growing thin for several years, with lassitude, palpitations, tremor and subfebrile temperature. No benefit was obtained from arsenic, calcium or sodium phosphate. She never had had actual goiter, but her neck had grown smaller in the last year or two. It was found that she had been using regularly for years a thymol mouth wash. After this had been discarded, her symptoms rapidly subsided, while her neck increased to its former size. McCarrison has reported the subsidence of goiter under thymol and Leichtenstern a death after 6 gm. of thymol. But with smaller doses than these, no untoward by-effects have been reported previously, to Eden's knowledge.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. David E. Stafford, San Francisco, has been placed in charge of medical affairs for the United States Shipping Board on the Pacific Coast.——Dr. Susan B. Tallmon Sargent, for several years medical missionary of the Congregational Church of San Jose, has returned after several years' of service in Lint Sing, China.

In the Hands of the Law.—A sentence of ten years' imprisonment in the federal prison at McNeill Island, Wash., and a fine of $5,000 was imposed by the United States District Court at Los Angeles, July 3, on "Dr." Frank Howenstein, for conspiracy to obstruct the selective draft law. The defendant was alleged to have induced draft registrants to undergo treatment for their eyes which would cause them to be rejected as unfit for military service.——The licenses of the following San Francisco physicians were said to have been revoked by the state board of medical examination and registration: Dr. George W. O'Donnell, convicted of illegal advertising; Dr. William L. Owen, convicted in New York courts of crime involving moral turpitude for which he served in the federal prison, Atlanta; Dr. James Hegyessy, for advertising with intent to deceive, and Dr. Marion Thrasher and Fischer R. Jordan, convicted of aiding, abetting or offering to procure an illegal operation. Dr. Frederick W. F. Riehl, Alameda, is said to have been found guilty of advertising to cure sexual diseases and to have been granted probation for two years. Dr. Frank Duncan was convicted on the charge of malpractice, Dr. Robert D. Shoults of using prefix or suffix tending to show holder to be entitled to practice along other principles, granted probation for two years. Drs. J. E. Thompson and Robert J. G. O'Connell were dismissed, and Drs. Albert P. Woodward and Ephrin Northcott are convicted for aiding, abetting or offering to procure an illegal operation. In these cases adjudgment was suspended until 1920. The board also refused to restore the license, which was revoked some time ago, of Samuel R. Chamley, a so-called "cancer specialist."

COLORADO

New County Society.—Physicians of Otero County met at La Junta recently and organized the Otero County Medical Society, electing Dr. G. W. Phillips, president; Dr. Ward E. Fenton, Rocky Ford, vice president, and Dr. H. G. Sigman, Rocky Ford, secretary-treasurer.

Personal.—The suit of Mary Riccott for $5,000 damages against Dr. Clement V. Marmaduke, Pueblo, was decided in favor of Dr. Marmaduke, June 20.——Dr. Edward J. Murray, Alamosa, has resigned to accept the position of medical superintendent of the Bluegrass Sanatorium, Lexington.

ILLINOIS

Hospital Dedicated.—The new hospital at Highland Park, erected at a cost of $100,000, was dedicated with formal ceremonies, July 12. The mayor of Highland Park acted as chairman of the meeting.

Negro Postgraduate Medical School.—It is reported that the Provident Hospital of Chicago, which is a hospital for colored persons, has obtained a charter for a postgraduate medical school for negro physicians.

Healer Found Guilty.—William B. Graves of East St. Louis was found guilty by a jury in St. Clair County for treating human ailments without a state license. The complaint was filed by the department of registration and education.

Personal.—Major Albert E. Halstead, Chicago, M. R. C., U. S. Army, has been promoted to the rank of lieutenant-colonel, National Army, and has been placed in command of Base Hospital No. 53, France.——Dr. Albert I. Bouffleur, Chicago, chief surgeon of the Chicago, Milwaukee and St. Paul system, was seriously injured by the overturning of his automobile near Orick, Calif., July 3.

INDIANA

State Hospital Overcrowded.—The Central Indiana Hospital for the insane has been forced to place on the waiting list all applications for the admittance of new patients within the last month because of the overcrowded condition and the scarcity of labor. There are now more than 1,500 patients in the hospital.

Sanatorium Capstone Unveiled.—The capstone of the new $150,000 tuberculosis sanatorium, which is being erected by the Allen County Anti-Tuberculosis Society at Fort Wayne, was unveiled, June 30, with impressive ceremonies. The hospital is to be named in honor of Irene Byron, a nurse who lost her life from tuberculosis, contracted while nursing patients suffering from the disease.

Personal.—Major David C. Peyton, Jeffersonville, who has been general superintendent of the Indiana Reformatory for nine years, has resigned to enter the service. He was a medical officer in the Spanish-American War.——Dr. Angus C. McDonald, Warsaw, is said to have had a narrow escape from drowning in Fox Lake, Ill., recently.——Dr. Calvin W. Burket, Warsaw, has accepted the position of chief surgeon of the Soldiers' Home, Lafayette.——Dr. G. H. Wisner, formerly connected with the Methodist Hospital, Indianapolis, has been appointed by the city board of health as medical resident at the City Hospital.

IOWA

Personal.—Dr. Henrietta A. Calhoun has been appointed assistant professor of otology and bacteriology, and Dr. Sarah R. Kelman has been appointed instructor in the same subject, on the medical faculty of the University of Iowa, Iowa City.

Hospital Internship Required for License.—At a recent meeting, the Iowa State Board of Medical Examiners voted that all applicants seeking a license to practice in Iowa after July 1, 1923, shall be required to have completed an intern service of not less than one year after graduation from a medical school in a hospital approved by the Iowa board. This requirement applies to all students beginning the study of medicine after July 1, 1918.

Des Moines Valley Society Meeting.—At the forty-seventh annual meeting of the Des Moines Valley Medical Society, held at Ottumwa, June 27, presided over by Dr. Martin F. Moore, Martinsburg, vice president, in the absence of Dr. Charles H. Magee, who is in the military service, the following officers were elected: president, Dr. Samuel K. Davis, Libertyville, and vice presidents, Drs. Martin F. Moore, Ottumwa, and Taylor R. Jackson, Albia.

Infantile Paralysis in Dubuque.—In an effort to stop the spread of infantile paralysis in Dubuque, the authorities have ordered all the theaters, Sunday schools, playgrounds and other places where children gather to be closed. Since July 4 there have been forty-two cases reported with ten deaths. Dr. Edward C. Rosenow arrived at Dubuque, July 9, with laboratory equipment from the Mayo Foundation, Rochester, Minn., and has started work to check the epidemic.

KENTUCKY

Health Board Troubles.—There are two state boards of health in existence in the state of Kentucky at present. The new board named by Governor Stanley consists of Drs. Carlos A. Fish, Frankfort; George T. Fuller, Mayfield; Josiah G. Furnish, Covington, and H. Harvey Carter, Shelbyville, who are members of the old board, Dr. Argus D. Willmoth, Louisville, and Elijah H. Maggard, Wayland, who are members of the state tuberculosis commission, Dr. Oscar C. Dilly, Louisville, whose name was submitted by the Kentucky Pharmaceutical Commission and the state board of pharmacy, and Dr. Carl Lewis Wheeler, Lexington, and John D. Williams, Ashland, members from the state at large. The tenth member elected by the appointed members is Dr. William L. Heizer, Bowling Green, formerly secretary of the state tuberculosis commission, who by virtue of his office becomes executive officer and secretary of the board. At the first meeting of the board, Dr. Willmoth was elected president, and Dr. Wheeler, vice president. After hearing arguments on July 12 on a motion to dissolve the injunction granted by Judge Stout of the Franklin Circuit Court, enjoining the newly named board of health from performing the duties imposed on it by the legislative act of March 4 last, the Court of Appeals of Kentucky, sitting in special session in Louisville, took the question under submission, and announced that the injunction would prevail until the matters involved are finally determined by the court. As a constitutional question is involved and the briefs submitted contain numerous references, further time was needed by the court. Under the ruling the new board of health appointed by Governor Stanley is without jurisdiction and the old board of health, of which Dr. J. N. McCormack is secretary, is acting.

MARYLAND

Personal.—The University of Maryland Hospital Unit, which was mobilized at Camp Meade, and is commanded by Major Archibald C. Harrison of Baltimore, has arrived in France.——Dr. Howard Bratton, Elkton, has been appointed physician to the Cecil county jail.——Dr. William S. Thayer, Baltimore, has been made a foreign member of the French Academy of Medicine.

Typhus in Gypsy Camp.—Typhus fever has broken out in a gypsy camp on the outskirts of North East, Cecil County, and three deaths from it have been reported to the state board of health. The malady so far has been confined to one family. Dr. C. Hampson Jones, Baltimore, chief the State Bureau of Communicable Diseases, has placed the entire camp under rigid quarantine.

New Surgical Wards Opened.—Two new surgical wards at U. S. Army General Hospital No. 2, Fort McHenry, were opened, July 12. The wards are for orthopedic patients, and are in charge of Major Samuel C. Baldwin, M. R. C., U. S. Army. Each of the wards will accommodate thirty-six patients and only men with diseases of bones or fractures will be treated. Shops have been erected near the wards in which artificial limbs and braces will be made. Most of the intricate work in the manufacture of these articles will be done by instructors and enlisted men, but patients are being taught much of it.

Paralysis on Increase.—More infantile paralysis appears to be in Baltimore than was supposed from the sporadic cases announced by the health department. Sixteen cases have been recorded at the state department of health since the latter part of April and two deaths have been reported. Eight cases have been reported from the counties. Dr. C. Hampson Jones, Baltimore, chief of the State Bureau of Communicable Diseases, and Dr. John F. Hogan, Baltimore, head of the City Bureau of Communicable Diseases, agree that there is no necessity for taking any drastic measures other than quarantining the infected households.

Intensive Courses in Nursing at Hospitals.—Since the South Baltimore Eye, Ear and Throat Hospital opened limited courses to young women desiring to qualify as hospital aides, the James Lawrence Kernan Hospital for Crippled Children and the Union Protestant Infirmary have opened their doors to a certain number of volunteers who will take a course of training extending over varying periods. The pupils at the Kernan Hospital will be given an intensive training course under the direction of the superintendent and will also serve as nurse maids, learning how to feed, dress and properly handle the little patients, how to put on and adjust their braces and other surgical apparatus. The pupils at the Union Protestant Infirmary will act as aides to the nurses and will assist with convalescent patients. After a month at the Union Protestant Infirmary, they will go to the Children's Hospital School, where they will spend another month. They are subject to the same rules and regulations as pupil nurses. After they have completed their training period they will be subject to call by the Union Protestant Infirmary in any nursing emergency that may arise.

MASSACHUSETTS

Edsall Succeeds Bradford.—Dr. Edward H. Bradford, Boston, for nine years dean of Harvard Medical School and for thirty-eight years a member of its faculty, has resigned to take effect, September 1. He will be succeeded by Dr. David Lynn Edsall, Boston, professor of clinical medicine.

Organize to Solve Public Health Problems.—Representatives of the Health Conservation Association met in the State House, Boston, July 9, and organized the Massachusetts Health Committee, with the following officers: chairman, Dr. Eugene R. Kelley, Boston, state commissioner of health; treasurer, Miss Gertrude Keiberly, vice chairman of the child welfare department of the National Council of Defense, and director, Prof. Charles E. Bellaty, Boston University.

Personal.—Dr. Merrill E. Champion, Wollaston, state district health officer for the eastern district, has been appointed director of the department of hygiene of the state department of health.——Capt. Alec N. Thomson, M. R. C., U. S. Army, Office of the Surgeon-General, Washington, D. C., has been detailed to the state department of health for three months as temporary chief of the subdivision of venereal diseases.——Dr. Mary R. Lakeman has been appointed epidemiologist of the subdivision of venereal diseases.——Dr. Francis X. Mahoney, health commissioner of Boston for eight years, will resume private practice.——Dr. Samuel E. Fletcher, Chicopee, has been appointed medical examiner (coroner) of Hampden County.——Dr. Philip P. Moore, Gloucester, has been appointed medical examiner (coroner) of Essex County.——Dr. Nathaniel R. Perkins, Boston, has been appointed a member of the board of registration in medicine.——Dr. Henry E. Doonan, South Hadley Falls, has been appointed associate medical examiner (coroner) of Hampshire County.

Instruction and Research in Industrial Hygiene, Harvard Medical School.—The Harvard Medical School is prepared to offer courses of instruction in industrial hygiene and facilities to investigate the problems of industry. The school has assurance of sympathetic cooperation through an advisory board of business men consisting of: W. E. McKay, Massachusetts Gas Co., and New England Manufacturing Co., S. Harold Green, Lockwood, Greene Co., and Frank J. Hale, Saco-Lowell Shops. The president of Harvard University has appointed a committee on industrial hygiene which is organized as follows: Dr. David L. Edsall, Boston, professor of clinical medicine; Dr. Reid Hunt, Boston, professor of pharmacology; Dr. Milton J. Rosenau, Boston (chairman), professor of preventive medicine and hygiene, and Dr. Cecil K. Drinker, Woods Hole (secretary), assistant professor of physiology. Under present conditions instruction and research in industrial hygiene will center about chemistry, physiology and medicine, and in these subjects new departments will be created. Courses will also be developed in the pharmacologic, sanitary and social phases of industry, supplementing the work of the school of public health. Fellowships and scholarships are available for those properly qualified. Opportunities will be open to three separate groups as follows: (1) research workers, (2) medical officers for large industries, and (3) inspectors of industries. In view of the war conditions alterations in the above plans may become necessary. For information apply to Dr. C. K. Drinker, Harvard Medical School, Boston.

MICHIGAN

Sanitary Train Hike.—Under command of Lieut.-Col. Lewis W. Bremerman, formerly of Chicago, the 310th Sanitary Train moved out of Camp Custer for a two-day hike. The party consisted of four fully equipped ambulance companies and four field hospital companies.

Personal.—Dr. William R. Vis, Detroit, has been appointed head of the Grand Rapids Municipal Tuberculosis Sanatorium and will be in charge of the tuberculosis work in that city.——Asst. Police Surg. Floyd W. Clements, Detroit, resigned, June 1, to accept a commission in the Medical Reserve Corps.

Ford Hospital Closed.—It is announced that the Henry Ford Hospital, Detroit, was closed, June 15, and that at present ninety employees of the institution are enlisted in various plants of the United States service and of these, forty-two are already active. The hospital has accommodation for 400 patients and will, it is believed, be utilized for the care of wounded and convalescent soldiers.

MINNESOTA

Control of Venereal Diseases.—The state board of health of Minnesota has formed a division of venereal diseases of which Dr. Henry M. Bracken, St. Paul, is secretary and executive officer; Dr. Charles E. Smith, Jr., St. Paul, assistant secretary; Dr. Harry G. Irvine, Minneapolis, director; Mr. L. W. Feezer, assistant director; Dr. Mabel S. Ulrich, Minneapolis, supervisor of social hygiene, and Dr. Charlotte G. Ashbrook, chief social worker. Funds for the administration of this division have been secured. The division will work on the following lines: The passage of laws or regulations and the enforcement of existing laws to make it possible adequately to control all classes of infected persons; the care and control of diseased patients, and the control of the prostitute. The division desires the cooperation of the medical profession in these important matters. Syphilis, gonorrhea and chancroid have been added to the list of reportable dis-cases, but the names and addresses of the patient need not be reported, providing the physician who is to assume the responsibility of the patient, renders the entire treatment. Each physician has been supplied with pamphlets regarding venereal disease for distribution. Druggists are to be required to report the names and addresses of all persons who apply to drug stores for treatment and the state board is planning to furnish full laboratory facilities both for the Wassermann test and for the examination for the gonococcus, to all physicians who desire them.

MISSOURI

College Not Recognized.—An official report states that at the meeting of the Missouri State Board of Health, held, July 8, recognition was withdrawn from the St. Louis College of Physicians and Surgeons.

State Board Appointments.—The governor, July 9, reappointed Dr. T. Hurly Wilcoxen, Bowling Green; Thomas A. Son, Bonne Terre, and Emmett P. North, St. Louis, members of the state board of health for a period of four years.

NEBRASKA

Personal.—Dr. George H. Brash, Beatrice, is critically ill in a local hospital, with nephritis.——Drs. Charles C. Tomlinson and George A. Young have been appointed assistant health commissioners of Omaha.——Dr. Joseph J. Hompes, Lincoln, has been appointed a member of the advisory board of the state board of health.

Hospital Items.—The city council of Omaha has formally approved the plan of Health Commissioner Manning to establish an internment hospital for women and girls at Twenty-Second Street and St. Mary's Avenue. This hospital has a capacity of sixty beds.——Contracts for the construction of the new Lutheran Hospital, Beatrice, has been awarded. The building will cost $125,000 and will be completed within eight months.

NEW YORK

Personal.—Dr. Robert P. Bush, Horseheads, was elected medical director of the New York State Department, G. A. R., at its annual meeting, June 27.——Dr. John H. Pryor has been reelected president of the Buffalo Tuberculosis Association.

Long Island Hotel for Army Hospital.—The government has signed a contract by which the Hotel Nassau, Long Beach, L. I., will be taken over early in September for use as an Army convalescent hospital. It is estimated that 2,000 convalescents can be accommodated.

Schools Kept Open During Measles Outbreak.—A recent bulletin of the New York State Health Department points out that it is not always advisable to close the schools in order to control an outbreak of measles. When measles appeared in Kingston, the sanitary supervisor, Dr. Laidlaw, made a survey and found that there had been 355 cases of measles reported to the city health officer. A survey of the schools showed that 83 per cent. of the children in the parochial schools and 79 per cent. of the children in the public schools were immune to measles. The question to be determined was whether it was better to close the schools to 2,268 children who were immune or to watch 756 children who were non-immune. The latter course was decided on. Just as soon as a child exhibited signs of measles he was sent home. By daily visits to the schools, the school physician was able to detect and control the beginning cases.

New York City

Personal.—Dr. Lewis S. Pilcher, Brooklyn, was elected senior commander of the New York State Department, G. A. R., at its annual meeting, June 27.

Shore Drives for Sick Soldiers.—The Brooklyn branch of the National League for Women's Service has opened a home for convalescent soldiers and sailors on the Shore Road at Eighty-Ninth Street, Brooklyn. To this are brought for day's outings convalescent men in the hospitals. Ambulances and private cars go for them in the morning and they are returned in the evening.

OHIO

Personal.—James E. Bauman, assistant commissioner of health of Ohio, has been placed in charge of the office of the state health commissioner during the absence of Major Allen W. Freeman who is in the military service.

Medical Council Named.—Committees constituting a city medical council to assist in developing a city wide system of medical service and education in connection with the social unit plan were named, July 1, and the meeting held at the Cincinnati General Hospital which was attended by sixty physicians represented various branches of medicine. Dr. John H. Landis, health officer of Cincinnati, appointed in charge of the temporary organization of these committees Drs. J. Victor Greenebaum, William D. Porter, E. Otis Smith, John D. Miller, David I. Wolfstein, Robert Carothers, William Mithoefer, Sidney Rauh, Edwin W. Mitchell and Willard D. Haines.

Control of Venereal Diseases.—Ohio is the thirteenth state to centralize its activities for the control of venereal diseases by placing them under a separate bureau in its state health department, according to a statement from the Ohio State Department of Health. Such a bureau has been in operation for several months and is carrying on educational work throughout the state and is encouraging the local health departments of the state to enlist in the campaign. The new venereal disease regulations that went into effect, July 1, are expected to aid in the campaign by increasing the health officials' knowledge of the prevalence of venereal infections and by providing for the isolation of infected persons who are likely to menace the public health. The new regulations require reporting of all cases of venereal diseases, with name of patient and probable source of infection, by physicians, dentists, hospital superintendents and heads of various institutions. Medical examination of prostitutes and others suspected of having a venereal disease is provided for, and quarantine of diseased persons, where such quarantine is deemed necessary by the state commissioner of health, is required.

OREGON

Personal.—Lieut. Albert A. Grossman, M. R. C., U. S. Army, Portland, attached to the Sixty-Second Battalion, Machine Gun Corps, British Expeditionary Forces, has been awarded the military cross by King George.

Medical Board Elects Officers.—At a recent meeting of the Oregon State Board of Medical Examiners, the following officers were elected for the ensuing year: Dr. Urling C. Coe, Bend, president; Dr. Frank E. Smith, Portland, treasurer, and Dr. Frank W. Wood, Portland, secretary.

PENNSYLVANIA

Lehigh Valley Association to Meet.—The annual meeting of the Lehigh Valley Medical Association will be held at Kittatinny, Delaware Water Gap, July 25, and the principal address will be delivered by Dr. Ernest LaPlace of Philadelphia on "Focal Sepsis in Relation to General Practice."

Quarantine at Allentown.—On account of the epidemic of measles in Allentown, a quarantine has been ordered affecting all children under 16 years of age. They are forbidden to attend Sunday school, church, or to go to any such public places as playgrounds, moving picture shows and parks. The playground system, which was to have opened, July 4, has been postponed. During June there were 789 cases of measles in the city.

Baby Saving Exhibit.—Two traveling teaching exhibits, under the direction of the state health department at Harrisburg, have been opened, one at Willow Grove Park, Philadelphia, and the other at Pittsburgh, to instruct the public on many important matters relating to health hygiene and sanitation, particularly toward baby saving. The exhibit at Willow Grove is in charge of Dr. William C. Miller, Harrisburg.

Personal.—Dr. Edward R. Walters, formerly director of health and charities at Pittsburgh, has been appointed medical adviser to the state workmen's compensation board of the western Pennsylvania district, with headquarters at Pittsburgh.——Dr. Roscoe F. Mauser, Fountain Springs, former resident surgeon at the Shamokin City Hospital, but who has been in service in France for two years, first with the French ambulance corps and later with the American ambulance corps, has been awarded the Croix de Guerre.

Philadelphia

Personal.—Dr. Wilmer Krusen, director of public health and charities, has been forced to drop his work because of a severe attack of tonsillitis.——Dr. William Wayne Babcock has been made a lieutenant-colonel and is stationed at the U. S. General Base Hospital No. 6, Fort McPherson, Atlanta, Ga.

SOUTH DAKOTA

Personal.—The state university at Vermilion has bestowed the degree of LL.D. on Dr. Leonard C. Mead, superintendent of the State Hospital for the Insane, Yankton.——Dr. Albert Sherrill, Sioux Falls, director of the hospital at Fort Crook, Omaha, is reported to be in a serious condition as the result of injuries received in an automobile accident.——Dr. William F. Keller, health officer of Sioux Falls for ten years, has resigned.

TENNESSEE

Hospital Site Purchased.—A tract of 159 acres of land has been purchased near Oakville as a site for the Shelby County Tuberculosis Sanatorium, which will be known as the Oakville Memorial Sanatorium.

Colored Physicians Elect Officers.—At the annual meeting of the Volunteer State Medical Association, held in Clarksville, last month, Dr. Charles A. Kelley, Clarksville, was elected president, and Dr. J. H. Hale, Nashville, secretary.

Campaign for Base Hospital.—The women of Memphis are making plans for a vigorous drive to secure $50,000 to be used by the Base Hospital No. 57, the Memphis Unit to provide extra care and attention for the sick and wounded soldiers. Mrs. A. S. Buchanan, Memphis, is chairman of the committee.

Personal.—Mrs. John Hill Eakin has been elected president of the state board of charities succeeding Dr. I. Lewenthal who was elected vice president.——Dr. William H. Bruce, a retired practitioner of Mount Pleasant, is seriously ill from an overdose of poison which he took accidentally in mistake for quinin.——Dr. Rufus E. Fort, Nashville, has resigned from the vital statistics bureau of the state board of health.

TEXAS

Personal.—Dr. S. L. Ingham, Canyon, while visiting Hampton, Iowa, was taken ill with appendicitis and was operated on at the Lutheran Hospital in that city, June 19. He is making satisfactory progress toward recovery.——Drs. Hiram B. Henry, Jacksonville, and Aleck P. Harrison have been appointed field directors of the bureau of rural sanitation of the Texas State Board of Health.

Prohibits Venereal Advertisements.—A new law has been passed in Texas which prohibits the advertising of remedies for venereal diseases and advertisements in which such diseases are mentioned or which direct the attention of the public to an office or person where such medicine or treatment may be obtained. A fine is provided for the publishing, delivering or distributing of such advertisements, as well as for those who permit placards or posters containing such information to remain on buildings controlled by them. The law is distinctly aimed at the male specialists and remedies for male diseases.

VIRGINIA

Society Suspends Meetings.—The board of directors of the Southwestern Virginia Medical Society has decided to discontinue meetings of the society until after the close of the war.

Personal.—Dr. William A. Brumfield, Richmond, who has been appointed acting assistant surgeon, U. S. P. H. S., will be in charge of the venereal disease campaign with headquarters in Richmond.——Dr. Robert L. Wilkins, Alexandria, has been reelected state commander of the Knights of Maccabees, and Howard Urbach, Richmond, has been elected state physician.

CANADA

Academy Election.—The Academy of Medicine, Toronto, elected the following officers at its annual meeting: president, Col. Alexander Primrose, C. B.; vice president, Dr. Edmund E. King; secretary, Dr. Jabez H. Elliott, and treasurer, Dr. J. Herbert McConnell.

Venereal Disease Regulation.—The provincial board of health of Ontario has issued a volume of regulations in pamphlet form, respecting venereal diseases, including suggested plans of treatment for the guidance of medical practitioners. Secrecy is emphasized with regard to all matters that may come to the knowledge of the practitioner.

Housing Committee Appointed.—The Ontario government has appointed a housing commission, of which Sir John Willison is chairman. It is said that in Toronto alone 25,000 extra houses will be needed to accomodate Toronto's population in the months of the coming winter. The medical officer of health has placed himself on record as being opposed to the erection of departmental houses.

When Prescribing of Liquor Is Proper.—The Ontario Medical Council is advising physicians on the roll of membership of the College of Physicians and Surgeons that "the giving of orders by medical men for the obtaining of alcoholic liquors is justified in any case in which the medical man is satisfied, 'of his own knowledge' that the use of alcoholic liquor is necessary and proper for the treatment of the patient."

Personal.—Col. Harold C. Parsons has arrived home in Toronto from overseas.——Col. Clarence L. Starr, Toronto, has returned from London, England, where he has been doing special orthopedic surgery in a military capacity.——Dr. T. R. Elliott, London, England, is mentioned as a likely appointee to a professorship in research medicine in the medical faculty of the University of Toronto.——Col. John M. Elder, Montreal, has been created a Companion of St. Michael and St. George.——Dr. Frederick N. G. Starr, Toronto, is spending a two months' vacation in the Maritime provinces. ——Dr. David M. Mathieson, major and senior adjutant of No. 2 District Demobilization Depot at Toronto, has resigned. Dr. Mathieson was overseas with the Canadian engineers. He was for a time officer in command of the Spadins Avenue Military Hospital, Toronto.——Major Edward Shapter Jeffrey, Toronto, has been made deputy assistant director of the medical corps in Toronto.——Capt. Calvin A. Ames, C. A. M. C., of the base military hospital, Toronto, has been attached to the aeronautical school in that city.——The Hon. Dr. Henri S. Beland, M. P., St. Joseph de Beauce, Que., formerly postmaster-general of Canada, who has been a prisoner for more than three years in Germany, recently arrived in England from Holland. He will sail for Canada in the near future.

GENERAL

Harvard Alumni Election.—At the annual meeting of the Harvard Alumni Association, Dr. Henry Jackson, Boston, was elected president, and Dr. William C. Quinby, Baltimore, secretary-treasurer.

District Society Meeting.—The Iowa and Illinois Central District Medical Association held a meeting at the Outing Club, Davenport, Iowa, July 11, at which Major John M. Dodson, dean of the College of Medicine of the University of Chicago, delivered an address on "The Medical Profession and the War."

Sisters of Charity Organize Base Hospital.—The American Sisters of Charity, for the first time since the war began, have enlisted as war nurses. St. Vincent's Hospital of Birmingham, Ala., has organized the Loyola Unit, known as Base Hospital No. 102, which is being outfitted in New York. The sisters wear the habit of their order, but otherwise follow Red Cross rules.

Jurisprudence Society Ends.—The majority of the members of the American Association of Medical Jurisprudence have filed a petition in the Supreme Court for dissolution of the corporation. The petition shows that the membership has decreased from 200 to twenty-three, and that there is a general lack of interest in the organization. The judge signed an order directing all persons interested to show cause, July 30, why the corporation should not be dissolved.

Sioux Valley Academy Not to Meet.—Dr. Lorenzo N. Grosvenor, Huron, S. D., secretary of the Sioux Valley Eye and Ear Academy, announces that there will not be a meeting of the academy at Omaha, July 25, as previously announced, on account of the number of members of the academy who are in active military service, the difficulty of securing papers, and the nearness of the meeting to that of the American Academy of Ophthalmology and Oto-Laryngology and the Fourth Colorado Ophthalmological Congress at Denver, August 5 to 7.

Bequests and Donations.—The following bequests and donations have recently been announced:

Harvard Medical School, a donation of $25,000 by an anonymous benefactor to establish a scholarship to bear the name of Dr. Edward H. Bradford, Boston, dean of Harvard Medical School.

Mt. Sinai Hospital, New York City, $25,000, and United Hebrew Charities, New York City, $10,000, by the will of Meyer H. Lehmen.

Saranac Lake, N. Y., General Hospital, about $1,000, the proceeds of a baseball game and circus.

Holy Ghost Hospital for Incurables, Boston, $24,000, and the residue of his property after certain other public and private bequests have been made, and Carney Hospital, South Boston, $1,000, by the will of Dr. John E. Somers, Cambridge.

FOREIGN

Scarcity of Gasoline in Switzerland.—The authorities of Switzerland by an order dated July 14, 1917, restricted the purchase of gasoline for motor vehicles to persons provided with a permit from the county (canton) testifying to their need for the use of a motor vehicle in the practice of their profession, and further provided with a gasoline ration card, to be renewed monthly.

Organization of Medical Men in Spanish Parliament.—The physician and pharmacist members of the lower house of parliament in Spain have organized, with Dr. F. Rodriguez at the head. They meet to discuss questions affecting the two professions in particular, and to seek to influence legislation in matters affecting the public health. The members include Drs. Pi y Suner, Gil, Gimeno, Villamil, Llanso and Villalobos, the latter acting as secretary. Eleven physicians in the upper house have also appointed a committee for a similar purpose. This committee consists of Drs. Cortezo, Gimeno and Pulido, and it is expected to cooperate with the organized medical men in the lower house. The *Medicina Ibera* in commenting on this organized action in favor of improved public health legislation and of matters affecting the profession, urges physicians throughout the country to sustain the efforts of these parliamentary groups so that their work may be crowned with success. The *Siglo Medico* comments that, although only in its incipiency, it looks as if a serious campaign on behalf of matters affecting the public health had now been started by the medical members of the two houses of parliament.

Deaths in the Profession Abroad.—**N. Achucarro** of Madrid, noted for his works on the histopathology of the nervous system, member of the editorial staff of the *Siglo Medico*, aged 37.——Lieut.-Col. **H. Moore** of Dublin, aged about 46, who succumbed to the effects of wounds at the front.——**F. Ortega** of the City of Mexico, stabbed in the abdomen by bandits as he was leaving his home to answer a late call.——The *Nederlandsch Tijdschrift* mentions the death of **A. Kolisko** of Vienna, professor of pathologic anatomy, and the *Norsk Magazin* reports the death of **L. Edinger**, a pioneer in the field of the comparative anatomy of the brain, director of the Neurologic Institute at Frankfort-on-the-Main, aged 63.——The death is reported of **Leopold Meyer**, professor of the diseases of women and children at the University of Copenhagen and one of the leading obstetricians of Denmark and of the world. He has published, among others, authoritative works on normal and on pathologic pregnancy, parturition and childbed, on the menstruation process and its pathologic variations, and completed in 1915 a large manual of obstetrics for physicians and medical students. Meyer was a familiar figure at international medical gatherings and is said to have visited America as early as in Sayre's and Emmet's day.

MEXICO

The Medical Toll of Typhus.—The sanitary inspector of the Mexican National Public Health Service, Dr. J. Garcia, is another medical victim of typhus.

Medical Director of General Hospital.—Dr. R. Carrillo, professor of obstetrics and midwifery, has been appointed director of the General Hospital of the City of Mexico.

Society Organized in Mexico to Combat Blindness.—Dr. Vasconcelos announces in the *Universal* the foundation of an organization to combat blindness. The director of the school for the blind in the City of Mexico, Dr. J. J. Izquierdo, is the secretary of the new society which is called the Comité para combatir la ceguera. The other officers are leading women.

The Booklets of the Mexican Preventive Association.—Dr. E. Landa is the author of the booklets for workingmen and for mothers and teachers, destined to enlighten youth and the heedless in respect to the dangers of venereal diseases. The pamphlets were issued under the auspices of the Sociedad Mexicana Sanitaria y Moral de Profilaxis de las Enfermedades Venereas in 1914 and are being widely distributed.

Representative Medical Journal to be Founded in Mexico.—At the last national medical congress in Mexico, it was voted to found a medical journal in which to publish the works of Mexican physicians and surgeons and to keep them informed of the progress of the medical sciences in other lands. The executive committee, preparing for the approaching medical congress, the sixth, has ratified this decision, and Dr. Francisco Bello of Puebla has been appointed general manager of the new enterprise.

CORRECTION

Article by Rieger and Solomon.—In the article entitled "The Circulation of Arsenic in the Cerebrospinal Fluid," by Drs. John B. Rieger and Harry C. Solomon, THE JOURNAL, July 6, page 15, the abbreviation "mg.," used to denote the amount of arsenic found, should read "mmg.," denoting micromilligram instead of milligram.

PARIS LETTER

PARIS, June 14, 1918.

Physical Education and Athletics for the Young

In the course of a recent manifestation in favor of physical education, organized at Bordeaux, M. Henry Paté, deputy, delivered a very interesting address in which he stated that he and some of his colleagues in the house of deputies had decided to participate actively in the physical education and athletics of the young, in accordance with the following program: 1. To adopt a general method of rational physical instruction, based on a knowledge of the physical needs of the subject, the specialization of the work, and the attraction of the exercise. 2. To create regional schools and a superior school destined to create and to maintain a unity of methods. 3. To open these schools to the physical instructors of the army, to the monitors of the preparation for military service, and to the instructors of both sexes. 4. To direct the young toward outdoor exercises, giving them free places, playgrounds and vacation camps. 5. To encourage the work of private societies and to assist them freely. 6. To obtain (*a*) the simplification of school programs, which are frightfully overloaded and tend to destroy energy; (*b*) the introduction of a physical test in all examinations; (*c*) the institution of outdoor schools and open air or outdoor colonies for the physically abnormal children, and (*d*) the complete reorganization of school medical inspection. 7. To assure the employment of special professors of gymnastics. 8. To demand legislation providing for obligatory postgraduate instruction and the introduction of the eight-hour day (*la semaine anglaise*), so as not to injure the professional work of the adults, or their apprenticeship, or reduce the wages to which they may aspire. 9. To give a larger place in the training for military service to physical education and athletics, as a base for the future reorganization of the army and of the recruiting laws.

In order to solve these multiple problems there has been appointed a Comité national de propagande pour le dévelopement de l'éducation physique et sportive, de l'hygiène sociale et de la rénovation de la race. This committee will cooperate closely with the public authorities, the universities, the faculties, the commercial centers, industrial centers, financial powers and the press.

Medical Treatment of Wounds of the Thorax

Dr. P. Delaunay reported to the Réunion médico-chirurgicale de la IV-e Armée forty-three cases of penetrating wounds of the chest caused by shell fragments and grenades, in eight of which there were associated lesions of *l'étage supérieur*. There were only five deaths in this whole series, four occurring almost immediately. The treatment of these cases was as follows: Treatment of the initial shock; no surgical intervention. The projectile was not sought, unless it was situated in the parietal wall and easily accessible. In cases of multiple wounds demanding immediate operations on limbs, resort was had to cocain anesthesia so as to avoid shock. As for hemothorax, pleural or pulmonary suture was not done, and the necropsy findings showed that any such intervention would have been a failure. In only one case was a late puncture made. In only four cases was a pleurotomy necessitated by pleural infection. Two patients who had a grave pleural septicemia, but were cured, seemed to be benefited by a fixation abscess. Although pleural complications were infrequent, pulmonary complications were quite numerous. In cases of pulmonary reactions manifested around the projectile tract, Delaunay applied pulmonary antisepsis: (1) the daily administration, by mouth, of a fluid mixture containing from 0.25 to 0.50 cg. of eucalyptol or 2 or 3 gm. of sodium thiosulphate (hyposulphite); (2) inhalation of eucalyptol spray; (3) intratracheal instillations, daily, of 5 c.c. of 5 per cent. of eucalyptus in oil; these instillations are tolerated well, the patient lying on the injured side for some minutes afterward. The fever was lessened; the expectoration was rapidly and desirably modified. In all these conditions the patient was freed from immediate danger, and if indications developed, could be operated on later.

At What Age Should Infants Be Vaccinated?

It is generally claimed that the new-born are not susceptible to vaccination; therefore, an official circular, dated Aug. 7, 1903, ordered that children should not be vaccinated before the age of 3 months. The application of this measure has proved very inconvenient. In the maternities, the women recently delivered stay in the institution only a few days after their delivery, and the new-born are thus taken away from these services without having been vaccinated. This renders it difficult to enforce the law. The obstetricians of the hospitals, notably Professor Pinard, have deliberately disregarded the law, and have been vaccinating all infants born in their service, during the first few days of life. This practice has yielded results completely at variance with previous beliefs; it makes it possible to protect all the little ones against variola. It is all the more urgent at this time because they can contract the disease precociously. As proof of this statement may be cited the recent case of a Paris child, 2 months of age, which was not vaccinated, and which succumbed to smallpox. Therefore, Professor Wurtz, chief of the Vaccine Institute, suggests that all children be vaccinated for the first time between the ages of 10 days and 3 months.

LONDON LETTER

London, June 18, 1918.

The Calling Up of Physicians for Military Service

The government has issued a statement to the medical profession of the present position as regards physicians who are liable to military service. Physicians are required in the army for the practice of their ordinary profession, and it can only be under exceptional conditions that a physician will not be of more use to the army in this capacity than in any other in which he can there be employed. Physicians in the army always hold commissioned rank and have a higher rate of pay from the outset than most officers when first commissioned. It follows that the financial sacrifice entailed on a physician in joining the army is distinctly less than that required of most persons of corresponding pecuniary circumstances in civil life when called up. Through special arrangements made partly by their professional colleagues, and partly by public authorities and others employing physicians, those who have joined the army have usually received a higher proportion of their ordinary income, and have enjoyed a better prospect of returning to their former position, than have other citizens of like financial position. The number of physicians required by the military authorities for ministering to the needs of the army greatly exceeds the number ordinarily available for treating the same number of persons in the civil community; and thus recruiting from the medical profession has been, proportionally, much greater than from the community as a whole. Moreover, the burden of recruiting has up to now fallen especially on particular areas which contained large proportions of the younger men. These were, in many cases, the very areas which, under conditions existing prior to the war, had the smallest supply of physicians in proportion to population; and many such areas are important industrial centers now engaged in essential war industries.

In view of these considerations and of the fact that a certain minimal standard of medical service is vital to the civil community and therefore to the continuance of the national effort in the war, it was recognized early in the war that the interests, not more of the profession than of the community, required that bodies, both central and local, representative of the profession, should be closely associated with the government departments concerned in selecting physicians for military service. Thus physicians have had the great advantage that in the process of deciding whether they should be called up their circumstances have been assessed almost exclusively by representative bodies of their own profession. While recruiting was voluntary, certain central professional committees, the Central Medical War Committee in England and Wales, the Scottish Medical Service Emergency Committee in Scotland, and the Irish Medical War Committee in Ireland, were constituted bodies representative of the profession. There was subsequently added to the Central Medical War Committee the Committee of Reference, appointed by the Royal Colleges of Physicians of London, and of Surgeons of England, to deal with the question of the medical staffs of the London hospitals. Local medical committees were also formed, being elected by the local profession. When compulsory military service was enacted, the Army Council decided to recognize the professional committees to deal with cases of physicians claiming exemption on grounds other than that of conscientious objection, with power to make recommendations binding on the tribunals. Arrangements were concurrently made by the Army Council whereby physicians who did not exercise their right of claiming exemption would nevertheless not be called up until the appropriate professional committees advised this. Under these various arrangements, considerable numbers of physicians were called up and provision was made for carrying on their civil work. Successive representations made by the committees to the government indicated, however, increasing difficulty in carrying out this task, notwithstanding the fact that considerable numbers of physicians remained in many parts of the country in excess of the apparent needs of the civil community in those places. The factors producing this anomalous position were: (*a*) the fact that compulsion for military service extended only to those under the age of 41; (*b*) the great difference in different localities in the proportion of physicians under this age; (*c*) the fact that there was no obligation on physicians to undertake work in civil life as substitutes for younger physicians who might thus be made available for the army, and (*d*) the difficulty, under a voluntary system, of inducing a sufficient number of physicians over 41 to undertake substitution work (whether at a distance or in their immediate neighborhood) when necessary for the release of younger men. This apparent unwillingness was not due to want of patriotism or of *esprit de corps*. As so often happens in connection with purely voluntary service, the unwillingness of a small number to accept their fair share of a common burden made it impossible to bring into operation arrangements in which the majority would gladly have concurred could they have been made applicable to all. Presumably these conditions led the Central Medical War Committee and the Committee of Reference to pass, in December, 1916, a resolution approving of "the principle of mobilization of the medical profession apart from any question of general mobilization of the whole community, so that every physician shall give such service as he can when required to do so by the state."[*] Matters then rapidly reached the stage at which no substantial additional number of physicians could be obtained for military service under existing powers and conditions. When the necessity arose for the passing of the recent military service act, it became necessary to raise the age of compulsory military service for physicians to 55 years. Under the regulations now issued, the committees, instead of being (as heretofore) technically advisory to tribunals, are constituted the tribunals by which applications by physicians for exemption will be considered. Applications for exemption may be lodged on the following grounds: (*a*) That it is expedient in the national interest that the physician, instead of being employed in military service, be engaged in other work in which he is habitually engaged or wishes to be engaged, or if he is being educated or trained for any work, that he should continue to be so educated or trained. (*b*) That serious hardship would ensue if he were called up for army service, owing to his exceptional financial or business obligations or domestic position. (*c*) Ill health or infirmity. (*d*) Conscientious objection to the undertaking of combatant service. The tribunals may grant absolute, conditional or temporary exemption on grounds of personal hardship or ill health, or of conscientious objection; but when the ground of exemption is occupational, only conditional exemptions will be granted, the condition being that the physician if not required for military service shall give his services to the civil community in such manner as the minister of national service deems best. He will be required to undertake work according to his age, state of health, the kind of work in which he is engaged and to which he is best fitted, and his financial circumstances. If some of the physicians in a particular district can be spared without substantial detriment to the population, they can be used to release for military service physicians in their own or in other districts. It will be no longer possible, therefore, for a physician to obtain exemption from military service on occupational grounds unless he undertakes to render his professional services in such place and under such conditions as the government thinks best. The probability is that most physicians will not be required to undertake additional work outside their own locality; but they must be prepared to accept the eventuality of military service or substitute service of any kind which the minister of national service after consultation with the Central Professional Committee deems best.

The German Bombing of Hospitals

The following are the official figures of the casualties due to the bombing of hospitals in France by the Germans from May 15 to June 1: killed: officers, 11; other ranks, 218; nursing staff, 13; civilians, 6; wounded: officers, 18; other ranks, 534; nursing staff, 18; civilians, 23, making a total of 841. During the period mentioned the hospitals were bombed seven times. A graphic account is given in the *Daily Telegraph* by Mr. Roland Hill, Canadian official correspondent, of the destruction of another Canadian hospital in an area never used for military purposes, the roofs being painted with great red crosses. One three-story wing, 200 yards long, was cut in half by a huge bomb and then caught fire. The operating room was working at high pressure, as some badly wounded patients had just been brought in, and the entire staff, physicians, nurses and patients, were buried under an avalanche of débris. In a few minutes the whole operating section was a flaming tomb, and bursting tubes of ether and hydrogen added to the ghastliness of the scene. Two other surgical teams fortunately had just gone off to their midnight supper, or the casualty list of surgeons would have been far heavier. The murderous intentions of the airmen is shown by the testimony of the matron that they used flares which lighted up everything. Not satisfied with dropping bombs, they flew low and used machine guns on the escaping refugees. During these horrors the nurses neither showed fear nor thought for themselves. The chaplain of one of the bombed hospitals told the king that they even refused to avail themselves of the protection of getting under the beds. They did their best to cheer and comfort the wounded, and gave them pillows with which to cover their heads. Many paid for their pluck by being maimed.

American Naval Hospital in London

The American Navy is to have its own hospital in London. For this purpose Mrs. Guest, wife of Captain Guest, M.P., has transferred to the American Red Cross her residence at 26 Park Lane, known as Alford House. Mrs. Guest before her marriage was Miss Amy Phipps of Pittsburgh. The house will contain fifty beds and will provide for both officers and men. The surgeons and attendants will be from the medical Corps of the United States Navy. On the official records the new institution will be known as "American Red Cross Hospital No. 25." It will be the twenty-fifth hospital which the American Red Cross has established in England. During the first three years of the war Mrs. Guest used her house as a private hospital for British officers.

The Reorganization of the Staff of the Metropolitan Hospitals

The minister of national service has approved a recommendation of the committee of reference that in order to provide more physicians for service in the army while at the same time safeguarding the interests of the civil community, the hospitals in the London area shall be arranged in groups, and that a sufficient staff of physicians shall be reserved to maintain the medical service of each group. Many physicians and surgeons are now serving at hospitals in various parts of London, involving long journeys, waste of time, and consequently loss of energy; and at the same time there are others both of military age and over that age who are capable of doing, and willing to do, more hospital work than they are now doing. Every member of the staff of a hospital will be asked to supply the committee of reference with a detailed statement of the hospital work and other work of a national character that he is now fulfilling, on a blank sent him for the purpose. This information will be tabulated and an analysis made of the amount of service rendered by each member of a hospital staff. From this analysis the committee will be in a position to advise the minister of national service as to the number of physicians of military age who must be considered indispensable to the civil community and who should in consequence be retained in civil practice. It may be necessary, in order to obtain the fullest benefit of a physician's service, to transfer his work from a hospital in one group to a hospital in another group as a temporary arrangement for the duration of the war. Each physician will be asked to sign a declaration that, if it is considered desirable in the national interest, he will agree to serve on the staff of any hospital or hospitals to which he may be assigned by the minister of national service on the recommendation of the committee, and at the same time to discontinue his services at any hospital where he may now be acting as a member of the staff. An appeal will be made to those members of hospital staffs who are over military age, to those who hold *à la suite* commissions in the army, and to those who have been medically rejected for service in the army or are otherwise excepted from liability under the military service acts, to assist by their cooperation in making this scheme a success.

The Loss of Potential Lives Due to the War

In a lecture at the Royal Institute of Public Health on "The Effects of the War as Shown in Vital Statistics," Sir Bernard Mallet said that in England and Wales the births registered in 1913 numbered 881,890. In 1915 they fell to 814,614. In 1916 there was a further fall to 780,520, the slightness of the fall from the previous year being due to the boom in marriages in 1915, when the number celebrated reached the "record" figure of 360,885. In 1917 the births fell to 668,346, a decline from the 1913 figure of 24 per cent. Up to the present we had lost in England and Wales in potential lives, on the standard of 1913, 650,000. He thought that it would be long before the birth rate reached even the figure that obtained before the war. Serious as this loss is to the coming generations in our country, there is reason to believe that we have suffered less than the other belligerents. In terms of percentages of loss on the prewar population, Germany has lost in potential lives the equivalent of 4.5 per cent. of its total prewar population, Austria 5 per cent., and Hungary 7 per cent. Sir Bernard Mallet calculated that the present war has cost the belligerent countries of Europe not less than 12½ millions of potential lives. While the war has filled the graves, it has emptied cradles. At the present time, every day that the war continues means the loss of 7,000 potential lives to the United Kingdom, France, Italy and the Central Empires. Race suicide among European peoples on a colossal scale is the outstanding result of German militarism.

Extension of Food Rationing

State control of the distribution and consumption of food is to be carried a stage farther by the introduction of national ration books (instead of the present cards). The new scheme coordinates and simplifies the national and local measures of rationing already in operation, and prepares the way for any necessary development. It also enables the minister of food to put into operation arrangements intended to secure the smoother working of the rationing machinery and to make provision for supplementing or varying the rations in cases in which the existing system applies unfairly. After July 14, there will be national rationing of sugar, butter, margarin, lard, butcher's meat, and bacon. Tea will not at present be rationed nationally, but local authorities may enforce their own schemes, and may also ration in their areas cheese or other articles. Provision is made for the rationing of jam if this should become necessary, owing to the partial failure of the fruit crop. An interchange of rations as between meat and fats will be allowed to vegetarians and Jews. The granting of supplementary rations of meat and fats to invalids will be decentralized, and the extra ration may be allowed in respect of illnesses other than tuberculosis and diabetes. Simplified methods of using ration coupons during temporary absences from home have been devised. Soldiers and sailors on leave will be provided with ration books for the period.

National Council for Combating Venereal Diseases

The third annual meeting of the National Council for Combating Venereal Diseases has been held. Lord Sydenham, who presided, said that the council had fifty-four branches. In the year, 1,323 lectures to civilians had been arranged by the branches, as well as 168 lectures by the central body in areas which the branches did not cover. A central council had been established in South Africa, and it was hoped that shortly Canada and every state in Australia would follow suit. In Bombay there was also an affiliated branch. The council is in communication with the war office on the difficult problem of demobilization. Mr. Hayes Fisher, president of the Local Government Board, said that 135 local authorities in this country had arranged for laboratories, and 136 had submitted schemes, under the regulations of which 127 had been approved. The hospitals treating these cases numbered 124, and all were provided with free supplies of arsphenamin for the treatment of syphilis by physicians. The returns for 1917, the first full year of the system, were not yet complete, but, so far as they went, they showed that 22,000 cases had been dealt with in these hospitals, and that there had been 197,000 visits to the outpatient departments.

Deaths

Lieut. William Gordon Herrington, M. R. C., U. S. Army, Nunez, Ga.; Medical College of Georgia, Augusta, 1912; aged 34; a Fellow of the American Medical Association; was killed in action in France, June 6. At a meeting of the medical officers of the Second Division, American Expeditionary Forces, held at La Ferte-sous-Jouarre, June 23, a committee of medical officers of the division presented the following resolutions:

> Whereas: Our fellow officer and colleague, Lieut. William G. Herrington, junior surgeon of the 3rd Battalion of the 23rd U. S. Infantry, was killed in action, June 6, 1918, while, under heavy shell fire, he was attending wounded with utter disregard for his own safety, thus giving clear evidence of his marked courage and fearlessness, and so giving his life cheerfully and gloriously in the defense of his country. Be it resolved that: We, the Medical Officers of the Second Division of the American E. F., hereby express our deep appreciation of Lieut. Herrington's splendid display of loyalty and unselfishness in the performance of his duty.

Albert William Myers, Milwaukee; University of Pennsylvania, Philadelphia, 1898; aged 46; a Fellow of the American Medical Association; associate professor of pediatrics in Marquette University, Milwaukee; chief of the dispensary staff of the Milwaukee Infants' and Children's hospitals; for several years editor of the *Wisconsin Medical Journal;* widely known as a specialist on diseases of children; died at his home, July 2, from pneumonia.

Asst. Surg. Richard Franklin Hill, Lieut. (j. g.), U. S. N. R. F.; Hahnemann Medical College, Philadelphia, 1909; aged 30; who was detailed to duty at the Philadelphia Navy Yard, and from there was sent to the Naval Hospital on account of a nervous breakdown and finally to St. Elizabeth's Hospital, Washington, D. C.; committed suicide in the latter institution by hanging, July 2.

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John Calvin Williams, What Cheer, Iowa; State University of Iowa, Iowa City, 1888; aged 73; a Fellow of the American Medical Association; a veteran of the Civil War; a member of the American Association of Railway Surgeons; a practitioner of What Cheer for forty-three years; died in the Mahaska County Hospital, July 2.

Richard Saunders Martin, Stuart, Va.; College of Physicians and Surgeons, Baltimore, 1881; aged 58; a Fellow of the American Medical Association; president of the state board of medical examiners; formerly secretary of the board; a member of the House of Delegates of the General Assembly; died in North Carolina, June 23.

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Claudius De Witt Bell, Chicago; Jenner Medical College, Chicago, 1907, aged 43; a Fellow of the American Medical Association; for ten years radiographer to Provident Hospital, Chicago; died in that institution, July 9, from lobar pneumonia.

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John H. Saylor, Groveport, Ohio; University of Pennsylvania, Philadelphia, 1862; aged 82; surgeon of volunteers during the Civil War; died in Grant Hospital, Columbus, July 6, a week after a surgical operation.

Simon Leslie West, Philadelphia; Jefferson Medical College, 1868; aged 73; a Fellow of the American Medical Association; well-known as a specialist in roentgen-ray work; died at his home, June 22.

Edgar S. Adams, Garrison, Texas; Medical College of Georgia, Augusta, 1873; aged 71; a member of the State Medical Association of Texas; died in a sanatorium at Shreveport, La., June 24.

Louis Ovide Morasse, Putnam, Conn; University of Victoria College, Coburg, Ont., 1884; aged 57; a member of the Connecticut Medical Society; died at his home, June 30, from cirrhosis of the liver.

Katherine Hanks, Covington, Ky.; Laura Memorial Woman's Medical College, Cincinnati, 1896; aged 62; died at St. Elizabeth's Hospital, Covington, July 7, from malignant disease.

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Murray Pearson Davidson, Hanford, Wash.; Kentucky School of Medicine, Louisville, 1894; aged 46; died in Spokane, Wash., July 1, from disease of the heart and kidney.

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Frank C. Barto, St. Louis; Keokuk (Iowa) Medical College, 1896; aged 46; died in the Missouri Baptist Sanatorium, July 5, after a surgical operation.

Joseph F. Cross, Bellingham, Wash.; University of Pennsylvania, Philadelphia, 1856; aged 82; died at his home, July 6, from cerebral hemorrhage.

Benjamin F. Bailey, Keokuk, Iowa; Cleveland University of Medicine and Surgery, 1866; aged 82; died at his home, June 27, from senile debility.

Roger J. Levering, Snydersville, Pa. (license, continuous practice, Monroe County, Pa., 1882); aged 82; died at Stroudsburg, Pa., recently.

St. Clair Dunn, C. A. M. C., Gimli, Man.; Manitoba Medical College, Winnipeg, 1908; aged about 40; was killed in action in France, in May.

Thomas H. Kingsley, Bakersfield, Calif.; University of California, San Francisco, 1886; aged 65; died at a hospital in Bakersfield, June 28.

Colin McLarty, St. Thomas, Ont.; Trinity Medical College, Toronto, 1875; L. R. C. P., Edinburgh, 1876; aged 69; died at his home, June 25.

Wells Andrews, Chicago; Rush Medical College, 1876; aged 64; died in Garfield Park Hospital, Chicago, July 2, from cerebral hemorrhage.

Clinton B. Fisk Grantham, Stanberry, Mo.; Ensworth Medical College, St. Joseph, Mo., 1890; aged 49; died at his home, about June 23.

Charles Alfred Tyrrell, New York City; Eclectic Medical College in the City of New York, 1900; aged 75; died at his home, July 2.

John Milton Major, Davenport, Iowa; a practitioner since 1848; aged 93; died in Davenport, June 3, from cerebral hemorrhage.

William Sidney Severance, Greenfield, Mass.; Eclectic Medical Institute, Cincinnati, 1853; aged 89; died at his home, July 1.

William B. Kyler, Benton, Ind. (license, Indiana, 1897); aged 72; died in Goshen, Ind., July 9, from cerebral hemorrhage.

Thomas Cato Kinmont, Hicksville, Ohio; University of Michigan, Ann Arbor, 1866; aged 86; died at his home, July 5.

Frank Ashton Packard, Kearney, Neb.; University of Vermont, Burlington, 1873; aged 65; died at his home, June 27.

John Goodwin Lane, Boston; University of Dublin, Ireland, 1876; aged 64; died at his home in South Boston, July 5.

Christian J. Simonson, Bowie, Ariz.; Barnes Medical College, St. Louis, 1910; aged 39; died at his home, June 6.

Samuel Toman, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1882; aged 72; died at his home, June 28.

Marriages

Asst. Surg. Royal Knight Joslin, U. S. N. R. F., Providence, R. I., on duty with the U. S. Marine Corps, at Quantico, Va., to Miss Beryl Higbee Kane of Newport, R. I., at Fredericksburg, Va., June 22.

Lieut. Robert Marion Prather, M. R. C., U. S. Army, Beeville, Texas, on duty at Fort Riley, Kan., to Miss Delia J. Purifoy of Birmingham, Ala., at Dallas, Texas, May 28.

Major Edgar Erskine Hume, M. C., U. S. Army, commanding Base Hospital No. 102, Camp Beauregard, La., to Miss Mary Swigert Hendrick, both of Frankfort, Ky., July 1.

Lieut. Theron Otis Walker, M. R. C., U. S. Army, Greenville, S. C., on duty at Camp Lee, Va., to Miss Janie Wood Hughes of Greer, S. C., April 24.

Lieut. Oscar Emil Nelson, M. R. C., U. S. Army, Minneapolis, to Miss Helen Moore Stover of South Bend, Ind., June 25.

Lieut. George Howard Wilson, M. R. C., U. S. Army, to Miss Gladys Lorene Harvey, both of Mount Carmel, Ill., June 24.

Lieut. Waldo Beatty Farnum, M. R. C., U. S. Army, to Miss Grace Marion Fischer, both of New York City, July 2.

Asst. Surg. Henry Sachtleben Kinloch, U. S. Navy, to Miss Hannah H. Brook, at Philadelphia, recently.

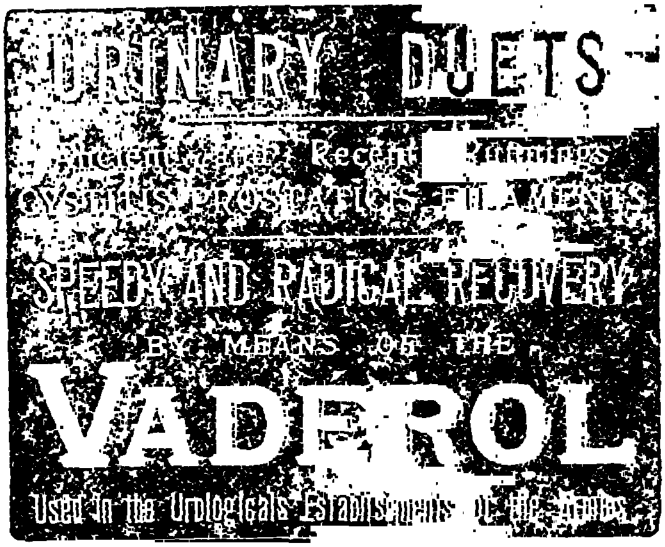
Frederick Adams Wood, Brookline, Mass., to Miss Ellen Larned Payson of Chicago, in Boston, July 3.

Capt. Charles Wolf, M. R. C., U. S. Army, to Miss Rosalie Zeamans, both of New York City, July 1.

Morris Aaron Flower, Newark, N. J., to Miss Claire Francis Beam of Philadelphia, June 22.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession



URINARY DUETS
[illegible] Recent [illegible]
CYSTITIS, PROSTATICS, FILAMENTS
SPEEDY AND RADICAL RECOVERY
BY MEANS OF THE
VADEROL
Used in the Urologicals Establishments of the [illegible]

A rather expensively prepared advertising card (8 in. by 10 in.), of which the above is a photographic reproduction, was forwarded by a medical officer in France to the Surgeon-General's Office in Washington, which in turn sent it to The Journal. It is an interesting evidence of the attempt of a French "patent medicine" maker to exploit the English-speaking soldiers now in France. The card, an embossed affair with white letters on a dark green background, indicates that more money was spent on its mechanical production than on the brains that were used to turn the French quack's appeal into English. We question the advertising value of the card—at least insofar as it applies to the English-speaking soldiers from the Western Hemisphere. It lacks the finesse of the American venereal quack; no wide-awake American, even though suffering from "urinary duets" or even, conceivably, "quartettes" or "sextettes," would be caught by such a crude appeal.

PRESCRIPTION A-2851

A Dangerous Nostrum of the "Rheumatism Remedy" Type

In this department of The Journal of April 6 was reported the findings of the chemists of the Louisiana State Board of Health in analyses of several "patent medicines." One of the preparations was "Prescription A-2851" of which was said:

"This product, which is said to have been known earlier as 'Eimer and Amend's Rheumatic Remedy,' was analyzed by the state chemists of Louisiana, who reported that the preparation seemed to be essentially nothing more nor less than a low grade of sherry wine containing approximately 7½ per cent. of potassium iodid."

More than a month after this item appeared Eimer and Amend wrote to The Journal in part as follows:

> "We assume that your intention in this column is to be fair. With this assumption in mind we call your attention to the fact that in your paragraph in reference to said prescription you, have failed to mention the principal ingredient thereof. Such ingredient is wine of colchicum seed, which constitutes forty-five per cent. (45 per cent) of the contents. Also you have erroneously stated the per cent. of iodid therein contained which, instead of seven and one half per cent. is nine and three tenths per cent. (9.3 per cent.)."

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Gorgas, W. C.: Venereal Diseases and War, *Am. Jour. Pub. Health*, February, 1918.
Macleod, J. M. H.: Dermatology and War, *Practitioner*, London, February, 1918.
Pinard, M.: Venereal and Skin Diseases in a Battalion, *Paris méd.*, Feb. 2, 1918.
Lindsay, H. C. L.: Dermatology in the Army, *New York Med. Jour.*, March 9, 1918.
Mowry, A. E.: Prevention and Control of Venereal Diseases in the Army, *Illinois Med. Jour.*, March, 1918.
Anderson, G. G.: Diagnosis and Treatment of Syphilis on Active Service, *Med. Jour. Australia*, March 30, 1918.
McKie, E. M.: Venereal Diseases—Army Viewpoint, *Boston Med. and Surg. Jour.*, April 4, 1918.
Cunningham, W. P.: Syphilis and War, *New York Med. Jour.*, April 6, 1918.
Noguchi, H.: Method of Facilitating Serum Diagnosis of Syphilis under War Conditions, THE JOURNAL, April 20, 1918, p. 1157.

THE DAY

This poem was written by a railroad porter in England some two years ago. It has been printed many times, in many countries, but it will bear repeating, especially at this time. One of the popular toasts at military banquets in Germany used to be *Der Tag*—the day when Germany would make an actuality of another toast, *Deutschland über Alles*.

You boasted the Day, and you toasted the Day,
And now the day has come.
Blasphemer, braggart and coward all,
Little you reck of the numbing ball,
The blasting shell, or the "white arm's" fall,
As they speed poor humans home.

You spied for the Day, you lied for the Day,
And woke the Day's red spleen.
Monster, who asked God's aid Divine,
Then strewed his seas with the ghastly mine;
Not all the waters of the Rhine
Can wash your foul hands clean.

You dreamed for the Day, and you schemed for the Day;
Watch how the day will go.
Slayer of age and youth and prime
(Defenseless slain for never a crime).
You are steeped in blood as a hog in slime,
False friend and cowardly foe.

You have sown for the Day, you have grown for the Day;
Yours is the harvest red.
Can you hear the groans and the awful cries?
Can you see the heap of slain that lies,
And sightless, turned to the flame-split skies,
The glassy eyes of the dead?

You have wronged for the Day, you have longed for the Day
That lit the awful flame.
'Tis nothing to you that hill and plain
Yield sheaves of dead men amid the grain;
And widows mourn for their loved ones slain
And mothers curse your name.

But after the Day there's a price to pay
For the sleepers under the sod.
And He you have mocked for many a day—
Listen, and hear what He has to say:
"Vengeance is Mine, I will repay!"
What can you say to God?

MATERIALS FOR NOGUCHI MODIFICATION OF WASSERMANN TEST

To the Editor:—Please answer this in Queries and Minor Notes: Where can one obtain small quantities in bulk, monthly, of acetone-insoluble lipoid antigen, and antihuman hemolytic amboceptor for the Noguchi Wassermann test?

M. E. MILES, M.D., Boulder, Colo.

ANSWER.—We assume that the materials required for the Noguchi modification of the Wassermann test are wanted by our correspondent. According to New and Nonofficial Remedies, 1918, p. 353, these may be obtained from the H. K. Mulford Company, Philadelphia.

NEED FOR THE GENERAL PRACTITIONER IN THE ARMY

To the Editor:—Kindly advise me what would be the proper place in the service for the general practitioner, the man 45 years of age, who has worked night and day for years but is in splendid physical condition and willing to join the Army. The impression prevails here that men under 35 years of age and specialists are needed, but that there is no place for the others who have spent their time in general practice.

X. Y. Z.

ANSWER.—This is a wrong impression. There is need in the Medical Department for every physician who can qualify physically, morally and professionally. In many departments of the service the general practitioner is a far better man for the work than the specialist.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

NURSES CANNOT LEGALLY GIVE ANESTHETICS IN WEST VIRGINIA

A decision recently handed down by the Attorney-General of West Virginia holds that the giving of anesthetics constitutes the practice of medicine, and that no person, nurse or otherwise, can legally give anesthetics unless he or she is duly licensed to practice medicine. The decision is as follows:

> Under the law, the right to administer drugs used in surgical anesthesia by a person not a licensed physician would not depend upon either the question of preparation by study or otherwise, or compensation or fees charged for services, but upon the question as to whether or not the administration of such drugs would constitute the "practice of medicine and surgery" within the meaning of the statutory definition. Is the administration of the anesthetic preparatory to a surgical operation an integral part of the operation itself? I think it is. There are certain things preparatory to a surgical operation necessary to be done that can be trusted to nurses and attendants which are not really a part of the operation itself, and require no great amount of skill to perform. However, an anesthetic is a substance, the unskilful handling of which is dangerous to human life. The person undergoing the operation places himself absolutely under the control of the person administering the anesthetic. This is the first dangerous step in the operation; the first one requiring peculiar skill and knowledge. The operating surgeon concentrates his attention to the cutting part of the operation and cannot well exercise careful supervision over the person administering the anesthetic. The anesthetic is such a subtle and dangerous agent that the most careful supervision on the part of the operating physician does not remove the danger of the anesthetic in the hands of an unskilful person.
>
> If it be held that the administration of anesthetics does not constitute the "practice of medicine and surgery," then the fitness of a person to administer them is determined in each case by the operating surgeon. He would constitute the examining tribunal and might choose either a skilled or unskilled person to perform a recognized dangerous part of the operation. I do not believe the legislature ever intended that any person not a licensed physician should be permitted to administer drugs used in surgical anesthesia, even though such person may act under the direction and in the presence of a licensed physician and surgeon.

From this opinion it appears that under no circumstances can any person, whether trained nurse or otherwise, administer an anesthetic during a surgical operation unless such person has received a certificate entitling him to practice medicine and surgery. It does not seem likely that the opinion of the Attorney-General would render illegal the administration of anesthetics in obstetrics, since in such cases only partial anesthesia is sought in the great majority of cases. If complete anesthesia becomes necessary, it seems that no one except a licensed physician can legally administer the anesthetic.

Decisions by attorney-generals of the various states in regard to the giving of anesthetics by nurses are thus far as follows: In Ohio and West Virginia it has been decided that the giving of anesthetics constitutes the "practice of medicine" and requires that the person who gives it must be duly licensed to practice. In Pennsylvania and Wisconsin the decisions were that the nurse could be permitted to give anesthetics. In Kentucky the lower court decided against the nurse, but the higher court reversed the decision so that Kentucky now lines up with Pennsylvania and Wisconsin. Decisions in other states will be watched with interest.

California February Examination

Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of California, reports the oral and written examination held at Los Angeles, Feb. 19-21, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 86 candidates admitted to the physician's and surgeon's examination, 53, including 40 osteopaths, passed, and 33, including 32 osteopaths, failed. Three candidates were granted osteo-

From a leaflet in our files giving directions for the taking of Prescription A-2851 we find the following claims:

> "It dissolves the calcareous deposits which cause the painful swelling at the joints and eliminates the uric acid from the system by its alterative action.
>
> "It contains no opiates or narcotic drugs in any form."

The dose for this nostrum, according to the directions, is 1 dram (teaspoonful) three times a day. As, according to the manufacturers, 45 per cent. of this stuff consists of wine of colchicum seed, this means that each dram contains 27 minims of that drug. Thirty minims is considered a full dose. Wine of colchicum seed, or, for that matter, any preparation of colchicum, is so powerful and its toxicity so uncertain that its use in products of the home remedy type should be unhesitatingly condemned. As one author has said in discussing the dangers of colchicum poisoning: "The poisoning is one of the most painful, slow and hopeless poisonings known and a man taking as much as an ounce of the wine of the root or the seed is almost inevitably doomed to a terrible death." In this connection it is worth bearing in mind that the four ounce bottle of "Prescription A-2851" contains, according to the manufacturer's letter, about two ounces of wine of colchicum seed. Yet this stuff is put on the market with no warning of its toxic character. The presence of so potent a drug as colchicum in any nostrum of secret composition sold to, and taken indiscriminately by the public, is unwarranted. The least that Eimer and Amend can do if they insist on continuing to sell "Prescription A-2851" is to warn the public of its dangerous character by using the word poison on the label.

Correspondence

HOW TO SECURE CHEST EXPANSION

To the Editor:—In the section of The Journal of July 13, 1918, devoted to queries and answers regarding the Selective Service Regulations, Dr. O. L. Williamson of Marianna, Ark., asks what shall be done in the cases of many physically fit negroes who do not know how to expand the chest, and show no chest mobility equaling 2 inches.

I find that if one cannot obtain 2 inches on first trial, it is wise to go on with the rest of the examination. While auscultating the lungs, part of the time I tell the registrant to take deep breaths. The conversation runs somewhat as follows: "Take a deep breath." "Take a deeper breath." "Now breathe all that you can." After concluding this exercise, of which the registrant understands not the purpose, on taking the chest measurement one is very much surprised to find 2½ or 3 inches of expansion, when at first he could not obtain better than 1½ inches. Today I tried this method successfully on a negro and a Russian, both of the laboring class, robust physically, neither of whom could expand 2 inches on first trial. After the lung examination, during which I exacted several deep respirations, as detailed above, the mensuration of the negro was 3 inches and of the Russian, 2½ inches.

In this zone are examined more negroes than in any other one in this end of the state, there being 1,300 negro registrants, besides many examined by us for other boards, principally Southern, Texas especially, there having been a large influx from Dallas and Houston to this locality this year. As Dr. Williamson points out, many of them physically fit every way seem incapable of expanding sufficiently to meet the regulation requirements. The method I have suggested will solve the difficulty in most, if not all, of these cases.

H. P. Ashe, M.D., Pittsburgh.

Examiner, Local Board No. 2.

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of

home,

VARIOUS SUGGESTIONS

Claud *Editor:*—It seems to me that for the period of the
Chicago, *duate sch*ools of the country should be requested
Association; duties of training physicians for the military
pital, Chicago; g to camp, for the reason that there will
pneumonia.

be but little demand for polyclinic courses in medicine while the great struggle continues. On the other hand, undergraduate schools should confine their attention solely to the training of students who are candidates for the degree of Doctor of Medicine. Their depleted faculties cannot possibly do more than this without the risk of losing their dynamic and inspiring qualities.

Graduate schools with ample hospital facilities should also undertake for the duration of the war the work of reclaiming those young men who are rejected from military service on account of remedial defects. They should further seek to create permanent institutions or departments for the preparation of physicians for the military service after the war.

Finally, there should be an organization made up of members of the Medical Reserve Corps after hostilities cease, the chief aim and purpose of which should be to promote the scientific and practical interests of the military medical service. A serious attempt to inaugurate and maintain an era of activity and progress relating to military medicine and surgery in America would be timely, more especially since we cannot hope to be always so fortunate as regards the incumbent of the office of the Surgeon-General of the Army, as was the case when hostilities began. The interest of the members in the medical profession would not be one whit lessened by their new responsibilities.

James M. Anders, M.D., Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VENEREAL DISEASES IN THE PRESENT WAR

To the Editor:—Please give me a list of references to articles on venereal diseases in the present war. If you answer in The Journal, please omit my name.

Enquirer, Cincinnati.

Answer.—The following is a list of references on this subject:

Gaucher: Venereal Disease During War at Military Hospitals; *Bull. de l' Acad. de méd.*, Paris, March 28, 1916.

Ffrench: Treatment of Venereal Disease in English Army, *Practitioner*, London, May, 1916.

May: Prophylaxis of Venereal Diseases in English Army, *Practitioner*, London, May, 1916.

McGrigor: Treatment of Syphilis in English Army, *Practitioner*, London, May, 1916.

Tullidge: Venereal Disease in European Armies, *Mil. Surgeon*, July, 1916; Venereal Diseases and War, *Med. Rec.*, New York, Sept. 22, 1917.

Zweig: Treatment of Venereal Diseases in Army Hospital, *Deutsch. med. Wchnschr.*, Nov. 23, 1916.

Gaucher and Bizard: Syphilis after Two Years of War, *Bull. de l' Acad. de méd.*, Paris, Dec. 26, 1916; *Paris méd.*, Jan. 20, 1917.

Riggo, C. E.: Prevention of Venereal Diseases at Naval Training Station, Norfolk, Virginia, *U. S. Nav. Med. Bull.*, January, 1917.

Merz, H.: Skin Diseases in the Swiss Army, *Cor.-Bl. f. schweiz. Aerzte*, Jan. 27, 1917.

Bates, G.: Venereal Disease Problem from Military Standpoint, *Pub. Health Jour.*, February, 1917; Military Aspects of Venereal Diseases, *ibid.*, February, 1918.

Wettenhall, R. R.: Dermatology in Active Service with R. A. M. A., *Med. Jour. Australia*, March 3, 1917.

Pasteau, O., and Mallein E.: Genito-Urinary Dermatologic Centers in Army, *Arch. de méd. et pharm. mil.*, April, 1917.

Gougerot, H.: Skin Diseases of War, *Rev. de méd.*, May-June, 1916.

Wolbarst, A. L.: Prevention of Venereal Diseases in Our Military Forces, *Med. Rec.*, New York, April 28, 1917.

Gaudy, J.: Venereal Diseases in the Army, *Arch. méd. belges*, June, 1917.

Moscati, G.: Syphilis in the Army and its Prophylaxis, *Riforma med.*, Aug. 11, 1917.

Cole, H. N.: Prophylaxis of Venereal Disease in Army, *Cleveland Med. Jour.* September, 1917.

Lyster, W.: Venereal Diseases and the New Army, The Journal, *Oct. 13, 1917, p. 1257.*

Botti, A.: Venereal Diseases and War, *Riforma Med., Jan. 5*, 1918.

Callender, G. R.: Problem of Venereal Disease in the Army, *Mil. Surgeon*, January, 1918.

Clark, J. B.: Straddle Stand for Prophylaxis and Treatment of Venereal Diseases in the Army, The Journal, Jan. 12, 1918, p. 90.

Ebert, R. G.: Problem of Venereal Disease in the Army, *Mil. Surgeon*, January, 1918.

Peacock, A. H.: Problem of Venereal Disease in the Army, *Northwest Med.*, January, 1918.

Spencer, J. C.: Venereal Diseases in the Army, *California State Jour. Med.*, January, 1918.

Hazen, H. H.: War and Syphilis, *Am. Jour. Syphilis*, January, 1918; Dermatology and War, *Med. and Surg.*, February, 1918.

criminality per se cannot be inherited, and it is hardly justifiable to use mutilation as a form of punishment; but it is legitimate to impose sterilization when an individual has an unquestionably hereditary trait which is dangerous to society. Most of the legislation on the subject in this country violates this scientific principle and according to the author should be revised. Especially interesting sections of the book concern evolutive crime and democracy, and the prevention of crime.

LESSONS FROM THE ENEMY. How Germany Cares for Her War Disabled. By John R. McDill, M.D., F.A.C.S., Major, Medical Reserve Corps, U. S. Army. Medical War Manual No. 5. Authorized by the Secretary of War and under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, $1.50. Pp. 262, with 145 illustrations. Philadelphia: Lea & Febiger, 1918.

Dr. John R. McDill arrived in Germany, June 17, 1916, as director of a unit sent to the Central Powers by the American Physicians' Expeditions Committee of New York, and was assigned first to Coblenz on the Rhine, and after one month to Fortress Graudenz in the East. After his arrival he obtained permission from the German military authorities to study their methods for publication in the United States. The results of these studies are embodied in this book. In the foreword the author says, "All through this narrative stands out the fact that preparation for war has been going on in Germany for many years not only by the army, but by numerous civil organizations preparing to lend essential assis- en a state of war occurred." The book covers the ect of the medical service of Germany in the war, ters on the German medical military organization, ative methods of the sanitary service and the base , covering volunteer nursing and welfare work, and finally to rehabilitation and reeducation, national and unal war relief work and social service. All of the strations are clear and instructive. The following sen- nce from the foreword is especially interesting:

> The common people of Germany at least, although still physically fit, are suffering from a hopeless malady "Friedensehnsucht," or longing for peace; but as time passes and their rulers demand more and yet more sacrifices and their hope is dashed as soon as it is born, their condition is so desperate that they are benumbed and are finding out that it is not so hard to die after one gets used to it.

A SYSTEMATIC COURSE OF QUALITATIVE CHEMICAL ANALYSIS OF INOR- ANIC AND ORGANIC SUBSTANCE. With explanatory notes. By Henry . Schimpf, Ph.G., M.D., Professor of Analytical Chemistry in the klyn College of Pharmacy. Third Edition. Cloth. Price, $1.50. p. 187. New York: John Wiley & Sons, 1917.

Any one who owns a previous edition of this book will gain ttle additional information from the later "revised" edition, which still contains much matter that is decidedly out of date. The student using this textbook alone would have no conception of the important subject of ionization. In fact, there is reflected a lack of knowledge on this phase—or carelessness—for otherwise it would be difficult to conceive why such mistakes should be made as that ammonium chlorid added to a solution of ammonium hydroxid and magnesium chlorid form the double salt $MgCl_2.2NH_4Cl$ (p. 59); or that manganese forms a soluble hydroxid, soluble in an excess of NH_4OH (p. 59); or that silver chlorid and ammonium hydroxid form rgentic *amin* (p. 30). The book abounds in chemical equa- ions, but they are for the most part misleading in that they fer that the reactions occur as they are given on paper, men as a matter of fact, they do not; some of the mistakes beyond presumptional explanation.

EDICAL SERVICE AT THE FRONT. By Lieut.-Col. John McCombe, M. C., and Capt. A. F. Menzies, M. C., C. A. M. C. Leather. , $1.25. Pp. 128, with illustrations. Philadelphia: Lea & Febiger,

s book is an outline of the Canadian methods of organi- and administration in the war. The several chapters a division in the front line, the regimental medical our chapters on the work of the field ambulance, the director of the medical services, the corps, medical nents for cavalry, and the casualty clearing station. General J. F. Fotheringham of Canada vouches for acy of the book. It is quite brief, its contents corre- to about thirty-two pages of THE JOURNAL, about f that space occupied by the diagrams.

Medicolegal

Validity of Agreement Not to Practice in a Certain Locality

(Scott v. Asbury (Mo.), 198 S. W. R. 1131)

The Kansas City (Mo.) Court of Appeals affirms a judgment in favor of the plaintiff in this suit to enjoin the defendant from practicing the profession of medicine and surgery within the territory covered by a circle having a radius of 10 miles with a certain place as its center, in violation of his executed oral contract with the plaintiff. The court says that the defendant was practicing in said place and vicinity, and lived in a residence the title to which was in his wife. Desiring to leave there and remove to the South, he advertised for sale his home and practice, in response to which the plaintiff went there. Negotiations were entered into between them. The defendant promised that if the plaintiff would become the purchaser of the home at $3,500, he would turn over his medical practice to him and leave there, and would not thereafter resume practice within 10 miles thereof. This offer was accepted and complied with on the plaintiff's part. A deed was executed by the defendant and his wife to the plaintiff conveying the home to the latter, possession was turned over to him, and the defendant publicly installed him as his successor in the practice of medicine and then removed to Louisiana. The deed to the home was a straight-out conveyance thereof for a recited consideration of $3,500, and said nothing about any agreement in reference to the medical practice. Before the deed was prepared, the plaintiff suggested that their contract be put in writing; but, on being assured that it was not necessary, as the defendant was going to Louisiana at once, the plaintiff did not further insist on the reduction of their contract to writing. But in a few months the defendant returned to his former home town and began practicing there.

The defendant's first contention was that there was no consideration for that part of the agreement relating to his further practicing at said place, but clearly this was not tenable, since the refraining by him from further practice there was one of the effective inducements offered to the plaintiff to become the purchaser of the home, and was a part of the consideration for that purchase.

The defendant's other contention was that, when the deed to the home was executed, the prior oral agreement, with all of its terms and provisions, became merged into the conveyance, and rendered inadmissible oral proof of the terms of the contract between the parties. But the rule referred to had no application to the facts of this case. The original contract between the parties was oral and entire, and the execution of the deed was not a reduction of the contract to writing, but was done only in order to perform a part of the contract, namely, to pass the title to the house over to the plaintiff. The deed recited nothing in relation to the agreement concerning the medical practice, nor did it contain anything to show that the contract between the parties was therein sought or intended to be reduced to writing. Nor were the other terms of the contract of a nature sufficiently related to the subject-matter of a conveyance of real estate to require their inclusion in the deed as one of the necessary elements thereof or to make the terms of the contract inherently in conflict with the terms of the deed. Hence the oral proof of the contract and of its terms in no way tended to vary, add to or contradict the deed. The court did not err in admitting evidence of the contract between the parties.

Bases for Recovery of Compensation

(Succession of F So. R. 515)

The Supreme Court of says that an attorney named Fourchy and his as ngaged the services of physicians named O'Hara, P and Mioton as expert alienists, to aid them in their de of a suit then pending, under a written contract reading the terms, as follows:

"In consideration of said employment, said Fourchy, agent and attorney in fact, agrees to pay to said O'Hara, Pothier and Mioton the sum of $1,200, to be divided between them, and, in the event that said interdiction proceedings are dismissed by judgment in favor of said Mrs. Pons, then the said . . . agent . . . agrees to pay . . . an additional sum of $1,800 to be divided between them. In case said interdiction proceedings are abandoned by plaintiffs, . . . then the sum of $3,000 shall thereupon become due and payable, or, in case said . . . proceedings shall be decided against said Mrs. Pons by final decree or judgment declaring her interdict, the sum of $1,200 shall be . . . payable, when the judgment shall become final."

The three physicians claimed $3,000 for their services as experts; but, the interdiction proceedings having abated by reason of the death of the defendant, the court is of the opinion that the "Messrs. Doctors" were entitled to but $1,200, to be divided between them, and that the $1,500 allowed by the judgment appealed from should be reduced to that amount.

Where the services of specialists are engaged under a contract that they shall be paid a certain sum in the event of certain specified possible happenings and a larger amount in the event of other happenings, they can recover only according to their contract, and, if the specified possible happenings do not happen, cannot recover the larger amount.

Again, the court says that Dr. O'Hara was called into consultation by another physician who had been placed in charge of Mrs. Pons and that he made an estimated number of visits for which he claimed $1,000, at the rate of $10 per visit. The judgment appealed from allowed him $500 for his services in that capacity, and the court finds no sufficient reason for making any change in that amount.

One who seeks to recover for medical services on the basis of consultations at so much per consultation or per visit should be able to show how many consultations or visits were had or made.

What Physicians May and May Not Testify To

(Klein v. Prudential Insurance Company of America (N. Y.), 117 N. E. R. 942)

The Court of Appeals of New York holds that, in this action on a life insurance policy decided in favor of the defendant, it was not error to receive the testimony of the physician who attended the applicant for insurance claimed to be insured, February 13, the day before the first premium on the policy was paid in full, that he was then sick, though the court says that in any case the evidence that the applicant was sick on the day before he was taken to the hospital (February 14) appeared almost, if not entirely, beyond controversy by testimony other than that of the attending physician. The prohibition against a physician giving evidence of matters within his knowledge, relating to a patient, the court says, is statutory. It is confined to information acquired in attending a patient *in a professional* capacity and which is necessary to enable him to act in that capacity (Code of Civil Procedure, Section 834). The code section is not intended to prevent a person from testifying to such ordinary incidents and facts as are plain to the observation of any one without expert or professional knowledge, and without tacitly or otherwise inviting or receiving confidences by which the incidents and facts are or may be brought to light and obtained. When the information obtained by a physician extends to the *existence of an ailment*, although not the subject of his attendance or treatment, but is acquired through an examination of the patient in attending him in a *professional* capacity, and the discovery of which was *a necessary* incident to the investigation made to enable him to act in his professional capacity, it is within the language and purpose of the code prohibition.

The plaintiff beneficiary's reference, in her certificate as a part of the proofs of death, to the certificate of the hospital physician, made his certificate admissible *in* evidence as an admission against her for what it was worth. If it appeared therefrom to have been based in whole or in part on hearsay evidence, or on confidential communications made to him by the patient, and the plaintiff desired to prevent its being considered in evidence, she should have objected to it on that ground, or have made a motion to strike it from the record.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirtieth Annual Meeting, held in Lenox, Mass., May 27-29, 1918

Dr. L. E. LaFetra, New York, in the Chair

Hemoptysis Following Exploratory Puncture of Chest

Dr. Augustus Caille, New York: In an infant admitted with a diagnosis of lobar pneumonia, a history of symptoms of respiratory embarrassment dating back two weeks, moribund and cyanotic at the time of admission, percussion revealed flatness over both lungs posteriorly and absence of pectoral fremitus below the scapula. To make sure of the absence of pus or serum, an aspirating needle was pushed into the seventh interspace for about three-quarters inch. This procedure was followed by a feeble coughing effort and by brisk hemorrhage from the mouth, and in less than a minute life was extinct. At necropsy the foramen ovale was found patent. Beneath the leaflet of the mitral valve there was an opening in the intraventricular septum. The cardiac musculature was of about the same thickness on the right as on the left side. There was distinct consolidation of both lungs, and marked congestion of the entire lung. No puncture of a large blood vessel could be found, and there was no laceration of the lung tissue. In acute cases in which puncture seems to be indicated, the introduction of an exploratory needle into the thorax containing a highly congested lung is attended with some degree of risk when cyanosis and other characteristic signs point to cardiac or circulatory failure.

Breath-Holding Attacks

Dr. I. A. Abt, Chicago: Breath holding manifests no true laryngeal spasm. The breathing is restive, and stops suddenly in the midst of a crying attack; but there is no inspiratory spasm. The child works himself into a rage, cries for a time, and then suddenly stops, finding it impossible for a brief period to make any further sound. The child becomes cyanotic or pale, his body becomes rigid, the eyes turn and become set, and it appears for a moment that the child is asphyxiated. The attack usually lasts for a few seconds and then disappears. Breath-holding attacks differ from minor epilepsy in that they follow immediately on severe crying, excitement or anger, while epileptic attacks occur suddenly in the midst of quiet play or even during sleep. Biting of the tongue, which occurs in epilepsy, does not occur in breath holding. Breath holding usually occurs in neuropathic children, and treatment should be directed toward the general management of the nervous child. When an attack occurs there should be no fussiness or consternation evinced by the mother or nurse. The patient should be shown in no uncertain manner that any repetition of the attack will meet harsh if not painful measures.

DISCUSSION

Dr. Rowland G. Freeman, New York: I had a case in which the attacks were sometimes prolonged until the child became unconscious. While the child had a cold it got one of these breath-holding attacks, became unconscious and died without regaining consciousness.

Dr. Percival J. Eaton, Pittsburgh: Of a family of four boys, three were subject to these spasms. The parents of these boys carried out the treatment Dr. Abt suggests. I have found that by forcing the mouth open, drawing the tongue out, and then pushing the cheeks in, some reflex is excited which relieves the spasm of the glottis.

Dr. Henry Heiman, New York: There are borderline cases which present a condition very much like spasmophilia, or Erb's phenomena.

Dr. I. A. Abt, Chicago: None of these cases of breath holding occurred until the second year of life, whereas spasmophilia manifests itself earlier. These children were, first of all, ill tempered, had short crying spells, and would then develop the breath-holding attack.

Death From Cardiac Failure in Children, Unexplained by Postmortem Examination

Dr. John Howland, Baltimore: Several cases came under my observation which ended in death with marked evidence of circulatory failure, but with no changes to be made out other than great cardiac hypertrophy and more or less dilatation. The hypertrophy was the striking feature. The musculature was intact. None of the conditions with which cardiac hypertrophy occurs were present in any of these cases. The myocardium was normal. There is reason for believing that as the result of some nervous or muscular disturbance, incoordinate action of the heart results.

DISCUSSION

Dr. Charles Hunter Dunn, Boston: I saw a baby with marked cyanosis and cardiac insufficiency. A diagnosis of double pleurisy and hydrothorax was made. The roentgenogram disclosed that the condition was cardiac, and it was thought that we were dealing with a pericarditis with effusion. The outline of the heart was very large, but the heart muscle was normal and there was nothing to explain the hypertrophy.

Infantilism: Two Cases Illustrating the Brissaud and Frölich Types, Respectively

Dr. J. P. Crozer Griffith, Philadelphia: A girl, at the age of 1½ years, had an attack of whooping cough and since that time is said not to have grown physically, although mentally the parents think she is normal. The extremities are short for the size of the thorax and the legs are slightly bowed. The child's weight is 20 pounds, the normal weight for her age being 49 pounds. Her height is 29 inches, the normal for her age being 45 inches. The thyroid was not palpable and this region of the neck did not seem as full as in normal children. The eyes are somewhat apart, the chest short and full, and there are slight subcutaneous fatty deposits in the supraspinous fossa. The abdomen is much distended, resulting in a distinct costal flare, and producing a compensatory lordosis of the lumbar spine. The temperature averaged somewhat below normal. The child was given thyroid medication and, while there was some increase in weight and measurement, there was no very material change in her condition.

A boy, aged 11 years, was admitted to the hospital for excessive obesity. The tendency to an undue deposit of fat had been first noticed when the child was 11 months of age. This had been gradually progressive and did not seem to be influenced by diet. The boy's weight was 251 pounds, the normal for his age being 70 pounds. The boy walked with a distinct limp, his abdomen was very fat, and the penis buried in fat and very small for the rest of his development. The testicles were descended, but very small. The urine showed slight traces of albumin, but no formed elements. The roentgen-ray examination of the head revealed a sella turcica definitely smaller than normal, indicating a small pituitary body. Examination disclosed a lowered sugar tolerance. After the administration of pituitary extract for two months there was a decided increase in the sugar tolerance. The patient was given a low carbohydrate diet, which was varied from time to time. While under our care, nearly three months, he lost only 17 pounds. This case represents an excellent instance of pituitarism of the Frölich type, except in certain particulars, namely, some of these cases of pituitarism of the Frölich type exhibited a retarded skeletal development, while this case showed a decided overgrowth. This might depend, as Cushing suggested, on activation of the anterior lobe of the pituitary body combined with insufficiency of the posterior lobe.

Variations in the Lipoid (Fat) Content of the Blood of Infants Under Certain Nutritional Conditions

Drs. W. McKim Marriott, St. Louis, and Warren E. Sisson, Boston: An infant fed on considerable amounts of fat, but unable to utilize this fat, is virtually in a state of fat starvation. Analyses of the stools for fat or its derivatives gives some indication of the efficiency with which the fat of the food is digested and absorbed. Further information can be obtained from a study of the fat of the circulating blood under varying conditions of feeding and states of nutrition. Other factors being equal, well nourished and poorly nourished infants have essentially the same amounts of fat in the blood.

An infant who is gaining weight, no matter what his state of nutrition, will have a higher blood fat percentage than one that is not gaining. Breast fed infants gaining weight show a higher average blood fat than any other group of infants in the series studied. Infants fed on milk mixtures containing no fat showed a low blood fat percentage, much lower than those being completely starved. Some of the infants being starved were suffering from "intoxication," and a few developed acidosis. The infants with acidosis showed blood fat percentages essentially the same as those that did not have acidosis.

DISCUSSION

Dr. Charles Hunter Dunn, Boston: Very often an infant gains weight on a fat free diet. What is the result of the blood fat examination in these cases?

Dr. Fritz B. Talbot, Boston: Did you try to find any connection between high carbohydrate feeding and blood fat?

Dr. Henry F. Helmholz, Evanston, Ill.: In children that have large fat deposits are these drawn on in acidosis? Is it only those that have large fat deposits in the organs that show a high blood fat?

Dr. W. McKim Marriott, Baltimore: I did not have any infants in this series that were gaining weight on low fat feeding. We had no infants on high carbohydrates, but I think the blood fat would be low under those circumstances.

Relative Efficiency of Mercurial Preparations in Congenital Syphilis

Dr. Walter R. Ramsey, St. Paul: In infants and children, mercury when given by the mouth, by inunction or subcutaneously is excreted at least partly by the urine. By inunction mercury is readily taken up by the skin and eliminated in the urine and continues to be eliminated for a considerable time. When one inunction is given, the maximum daily amount of mercury is eliminated during the following twenty-four hours, smaller amounts being eliminated for a variable time. Where continuous inunctions are given there is an accumulation in the system, and considerable amounts are eliminated at intervals with only traces between. It is probable, therefore, that it is unnecessary to have mercury in contact with the skin, with or without rubbing, as often or as long as has been generally thought necessary. Mercuric salicylate suspended in oil and given subcutaneously continues to be eliminated in the urine in appreciable amounts for as long as eight days. Therefore, a repetition of the treatment not oftener than at intervals of eight days would be sufficient. Mercuric chlorid by the subcutaneous method continues to be eliminated for eight days. It therefore seems probable that the daily use of any of the mercurial salts in the amounts usually prescribed is unnecessary and presumably harmful.

Standards for Growth and Nutrition of Schoolchildren

Dr. L. Emmett Holt, New York: The relation of height to weight is important as indicating the state of nutrition, but considerable variation exists in healthy children. A child's nutrition may be considered below the normal when he is 10 per cent below weight for his height between the sixth and the tenth year, or 12 per cent below from the eleventh to the sixteenth year. The best guides to the state of nutrition, and more important than either of the foregoing, is the annual rate of increase in weight and height. The annual increase in weight is from 4 to 6 pounds a year from the sixth to the tenth year, while it rises to an average of 13 pounds in the fifteenth year. The annual increase in height varies normally less than weight. The average increase is from 1¾ to 2 inches a year from the sixth to the eleventh year; it rises to its highest point in boys form the thirteenth to the sixteenth year, when it is usually from 2½ to 3 inches a year. In girls it is highest from the tenth to the fourteenth year. Observations on 1,243 school boys between 10 and 16 years of age showed that they increased in weight 1¼ pounds more in six months from May to November than from November to May, and that the gain in height was 0.38 inch more during the first named period.

DISCUSSION

Dr. John Lovett Morse, Boston: Growth in height is most rapid in the spring, and gain in weight is most rapid in the autumn.

Dr. Alfred F. Hess, New York: It has been our experience that children do not gain well in the summer months. The reason Dr. Holt found a greater gain during the summer is that the boys were housed up during the winter and led an outdoor life during the summer. To be of practical value, these observations should be made on hundreds of thousands of children.

Dr. Charles Hendee Smith, New York: Under nutrition affects growth in height as well as in weight. The factor of heredity has also a great influence. The children of taller parents can be made to grow more rapidly, if treated properly, than those whose parents are of short stature.

Complement Fixation Test for Tuberculosis in Infancy and Childhood

Dr. Henry Heiman, New York: The serums of fifty-nine patients from 6 months to 12 years of age were tested. Sixteen were tuberculous, six probable or suspicious, and twenty-eight were nontuberculous. Among the former group were six cases of tuberculous meningitis. Complement fixation reactions on the blood of these patients with both antigens was negative in four and only suspicious in two cases. Of seven cases of pleural effusion one was definitely tuberculous, three were probably tuberculous and in three others the etiology could not be definitely determined. In these cases the complement fixation tests were negative with both antigens. The serum of the three patients in whom the etiology was not definitely determined gave negative reactions also. Of six children with pulmonary involvement, two being cases of miliary tuberculosis with the usual course, all gave negative reactions with both antigens.

One case of tuberculous peritonitis gave a negative reaction with both antigens. The diagnosis was subsequently confirmed by necropsy findings. Among twenty-eight cases with no signs or symptoms of tuberculous infection, complement fixation tests revealed three strongly positive reactions, one faint inhibition and one suspicious reaction.

DISCUSSION

Dr. Paul Armand Delille, Paris, France: Some years ago I made complement fixation tests in tuberculous children and also in adults using old tuberculin and different antigens, and I found that this test was of no value.

Dr. J. P. Sedgwick, Minneapolis: Results with the complement fixation test in tuberculosis are largely a question of the antigen. Dr. Larsen of the University of Minnesota has a better antigen, and he is getting remarkable results.

Value of Auxohormones in Feeding the Young

Dr. E. W. Saunders, St. Louis: A condition which I have seen four times during the past year shows a clinical course as follows: A baby that has previously given no cause for anxiety is suddenly taken ill. The symptoms are insomnia, frantic nervousness, vomiting, and loathing of the particular kind of food on which it has been fed, momentary convulsions, rapid pulse, very slight fever and no acetone breath. Tetany is rarely manifested in the hands and feet: Death comes without warning. One factor is invariably found, namely, that the child has been taking a dead food exclusively. This condition cannot be identified with thymic asthma, tetany or spurious hydrocephalus. In the treatment of the conditions, much may be hoped from the prompt and vigorous employment of large doses of glonoin dropped on the tongue and exclusive tube feedings, using a live rennet whey and rapidly increasing the percentage of unpasteurized cream, autolyzed yeast and green vegetable juices. Calcium bromid and the phosphates seem to be beneficial in all cases. If we do not stop the craze for high sterilization in the feeding of infants, we shall have a nation of rickety dwarfs. To protect against this tendency we may feed the yolk of an egg, never the white, honey and vinegar, which we have used during the last two years with increasing satisfaction and which authorities say enhances the value of vitamins. Gruels of natural grains, ground whole, have proved far more acceptable than the 1 per cent cereal decoctions of devitalized grains. Baby's milk may be constructed out of an ounce or more of coconut oil, emulsified with a natural gruel which has been boiled with cabbage and sweetened, preferably with honey. The patent foods for babies are destitute of vitamins and glandular fat and of adequate mineral content, and, in whole or in part, deserve governmental supervision in the interests of the children.

Balantidium Coli Infection in a Child

Dr. L. R. DeBuys, New Orleans: The patient was 5 years of age, had helped round up the pigs, and ate his food at times in the pig pen. He had been ill for nearly a year with diarrhea. There were periods of improvement. Each succeeding attack, however, was more severe than the preceding one. The stools resembled those of amebic dysentery, containing blood and mucus. The rectal tube was passed and the organism was identified.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

June, 1918, 77, No. 6

1 *Operation for Urinary Incontinence in Women by Transposing Levator Ani Muscle. F. J. Taussig, St. Louis.—p. 881.
2 Total Hysterectomy, per Vaginam, Lapping of Anterior Vaginal Wall Fascia and Approximation of Cardinal Ligaments, for Cure of Extreme Procidentia Uteri of Long Standing. D. Bissell, New York.—p. 892.
3 Tretiary Syphilis of Cervix Uteri; Report of Case. O. H. Schwarz, St. Louis.—p. 900.
4 Hemorrhoids of Urethra in Women; Report of Cases. A. Heineberg, Philadelphia.—p. 912.
5. Puerperal Pelvic Infection. J. O. Polak, Brooklyn.—p. 916.
6 *Results of Blood Pressure Observations in Four Hundred and Forty-Seven Cases of Pregnancy. W. C. Danforth, Evanston, Ill.—p. 927.
7 *Blood Transfusion (Citrate Method) in Hemophilia Neonatorum. R. Lewisohn, New York.—p. 933.
8 Conservative Treatment of Displaced Uterus. H. A. Wade, Brooklyn.—p. 936.
9 Indications, Dangers and Contraindications of Uterine Curetment. C. S. Barnes, Philadelphia.—p. 940.
10 Possibility of Mistaking Remains of Hypogastric Artery for Ureter. S. E. Tracy, Philadelphia.—p. 947.
11 *Cesarean Section in Treatment of Eclampsia. W. E. Parke, Philadelphia.—p. 948.

1. **Operation for Urinary Incontinence.**—The occasion for this new procedure was the necessity of finding some muscle tissue that could be utilized for the purposes of a new sphincter urethrae. It occurred to Taussig that with a somewhat relaxed pelvic floor the anterior bundles of the levator ani muscle could be utilized for this object by transposing this portion of the muscle beneath the anterior vaginal and attaching it under the urethral opening to the pubic ramus of the opposite side. The procedure is described in detail.

6. **Blood Pressure of Pregnant Women.**—Danforth's observations in a series of 115 cases showed that the average blood pressure of the pregnant woman is less than that of the nonpregnant. Labor causes in many cases a rise of arterial tension. Toxemia of pregnancy is accompanied by a rise of blood pressure except in very rare instances and this rise usually precedes other symptoms.

7. **Blood Transfusion in Hemophilia Neonatorum.**—Lewisohn's personal experience in hemorrhage of the newborn comprises eight cases. Six of these were permanently cured by a single transfusion.

11. **Cesarean Section in Treatment of Eclampsia.**—Parke reports twenty-one cases of eclampsia delivered by abdominal section, in addition to or preliminary to eliminative treat-

ment. Two of these mothers died (and four babies), a mortality of 10 per cent. These cases were not selected because they appeared to be favorable, but were cases good and bad as they presented themselves. Many of them were not early cases; that is, the operation was not done promptly after the first convulsion which, Parke says, is the time of election; but even so the percentage of recoveries compares not unfavorably with that of other methods of treatment.

American Journal of Ophthalmology, Chicago

June, 1918, **1**, No. 6

12 Contraction of Paretic External Rectus Muscle Diminished When Masseters Are Contracted in Act of Biting. P. N. K. Schwenk and W. C. Posey, Philadelphia.—p. 393.
13 Deep Roentgen Ray Therapy in Treatment of Tumors of Hypophysis. C. Loeb, Chicago.—p. 397.
14 Vernal Conjunctivitis Greatly Improved by Radium Treatment. E. A. Shumway, Philadelphia.—p. 404.
15 Blocking of Macular Arterioles as Cause of Central and Paracentral Scotoma of Macular Bundle Type. R. I. Lloyd, Brooklyn.—p. 406.
16 Magnet Extraction of Foreign Bodies from Eyeball. F. Allport, Chicago.—p. 412.
17 Tumors of Eyeball and Structures Accessory. D. F. Harbridge, Phoenix, Ariz.—p. 417.
18 Case of Cystic Brain Tumor; Necropsy Report. G. F. Libby, Denver.—p. 424.

American Journal of Orthopedic Surgery, Boston

June, 1918, **16**, No. 6

19 *Operative Treatment of Nerve Injuries. H. J. Stiles, Edinburgh, Scotland.—p. 351.
20 Arthrodesis of Shoulder Joint. C. H. Bucholz, Boston.—p. 364.
21 *Use of Boiled Bone in Operative Surgery. W. E. Gallie, Toronto, Canada.—p. 373.
22 *Lower Back Pain. A. R. Colvin, St. Paul, Minn.—p. 384.
23 *New Stabilizing Operation for Foot in Infantile Paralysis. F. E. Peckham, Providence, R. I.—p. 397.
24 *Fractures of Tibia Following Removal of Bone Graft. J. A. Brooke, Philadelphia.—p. 399.
25 American Hospital in London. F. C. Kidner.—p. 400.

19. **Operative Treatment of Nerve Injuries.**—Stiles emphasizes the fact that as the operative treatment of peripheral nerve injuries frequently entails extensive, and sometimes difficult, dissections, it is essential that the operator should possess a thoroughly practical knowledge of anatomy. In operations on the nerves of the extremities three assistants are generally required, namely, one to steady the limb, a second to swab the wound and secure the vessels, and a third to take charge of the retractors. Stiles never uses a tourniquet at these operations because the vessels are often a good guide to the nerve and its branches, because much time has to be spent in securing the vessels when the tourniquet has been removed, and because there is a greater tendency to subsequent oozing. During the operation he never bathes the wound with normal saline; the best lotion is the patient's own blood. The dissection to expose the injured nerve should err on the side of being too extensive rather than too limited, and the importance of exposing the nerve above and below the lesion in the first instance cannot be too strongly insisted on. This is especially important when the nerve is bound down by, or embedded in, cicatricial tissue.

While Stiles is careful to use gloves in all septic cases, he considers it a distinct asset to be able to dispense with them where rapid and delicate dissecting work is required; but the omission of gloves must not be attempted unless the surgeon has learned how to keep his skin smooth. Nor is it necessary in performing nerve dissections to protect the wound from the adjacent skin by clamping gauze to its cut edges. By so doing, one only encumbers the field of operation unnecessarily. In suturing a nerve he prefers to use the finest linen thread. A single through-and-through suture is sufficient even for the great sciatic. While it is being introduced, every endeavour should, so far as possible, be made to bring the corresponding fibers of the two stumps into apposition, in other words, there must be no unequal rotation on the stumps. The rest of the sutures include the sheath only. They are most conveniently introduced by means of a fine, curved needle (cleft palate needle) and a needle holder. They should only be in sufficient numbers to prevent protrusion of the nerve fibers. After suture the nerve should not be ensheathed either with a vein, fascia, lata, or Cargile membrane, as these materials only serve to promote the formation of cicatricial tissue. The best bed for the nerve is one consisting of fatty cellular tissue or healthy muscle.

Subcutaneous sutures are quite unnecessary, and their introduction only serves to prolong the operation. It must be remembered, however, that wounds in the long axis of the limb may give rise to a little tension, so that the sutures should be left in for ten days or so. Silkworm gut is the best material to use. With regard to drainage it is seldom necessary to introduce a tube, especially if interrupted sutures are employed, when all that is needed is to leave an interval between one or two of the stitches sufficient to admit of the escape of the blood stained serum. When flexion of the adjacent joint is necessary to take the tension off the nerve, the limb should be carefully splinted, and the first dressings should not be left entirely to the nurses. Those in charge of the after-treatment should not be in too great a hurry to straighten the limb. Increased experience has convinced Stiles that we often delay too long in operating. Delay is justified if there is definite evidence that improvement is taking place, and this is more likely to happen if the nerve has been contused as a result of a fracture, or if the symptoms are due to the pressure of callus. In such cases the improvement is progressive and often ends in complete recovery. In cases, however, where the nerve has been directly injured by a bullet or piece of shrapnel it is a mistake to wait, although the lesion may be only partial. Valuable time is wasted in waiting for a recovery, which, in the end, is only very partial. The operation can do no harm. The pain, the trophic changes, the reflex spasm and the contractures often rapidly disappear. In short, the operation will not only expedite the recovery, but will at the same time render it more nearly complete. Stiles also discusses the treatment of injuries of individual nerves.

21. **Use of Boiled Bone in Surgery.**—Four patients with spine deformities have been operated on by Gallie. One of the patients was operated on two years later for another surgical condition, and with the consent of the parents, Gallie was able to examine the graft and obtain a piece of it for section. The spines were found to be solidly united together by a rigid bar of bone of the same size and shape as the original grafts, except that it was more rounded at the edges and covered with a thick fibrous membrane, resembling periosteum. The piece removed for section was obtained by cutting the graft longitudinally with an osteotome, and it included the tip of one spine and a section of the graft above and below this spine as far as the middle of next space on one side, and as far as the edge of the next spine on the other. In this way the whole length of one segment of the graft was studied. The changes in the boiled spinal graft consisted first, of the union of the graft to the spines by the laying down of new cancellous bone on it. Then comes the reestablishment of the circulation by the ingrowth of blood vessels into the empty haversian canals. Finally, the graft is invaded by osteoblasts along the course of the blood vessels. These osteoblasts slowly acomplish the absorption of the dead bone and its replacement with new living bone, which persists in a somewhat similar gross form, while conforming to the general law governing the architecture of bone. The ability of these osteoblasts to spread along a dead graft as far as half the distance between the spines, Gallie says, is therefore conclusively demonstrated, and the feasibility of locking the spines together for a period of two years by means of boiled bone transplants is indisputably established.

22. **Lower Back Pain.**—On one occasion, in a young person suffering from pain of sciatic distribution, Colvin discovered by rectal examination an infected embolic aneurysm. In another case, supposed to be a sacro-iliac strain, a sarcoma of the sacro-iliac region was found. In a third case a tumor mass about the size of a small fist below the diaphragm, wedged in the costovertebral angle secondary to a primary malignant focus (a small papilloma) in the gallbladder caused severe lower back pain; other cases are cited.

23. **New Stabilizing Operation for Foot in Infantile Paralysis.**—This operation consists of taking a long strip of fascia lata and transplanting it to the lower leg. In a case in which

92 Embryonic Carcinoma of Ethmoid and Roof of Antrum. J. A. MacKenty, New York.—p. 491.
93 Adenoids in Adults. F. A. Lewis, Auburn, N. Y.—p. 493.

Medical Record, New York

June 29, 1918, **93**, No. 26

94 Origin and Organization of Department of Health of City for New York. S. Smith, New York.—p. 1115.
95 What General Practitioner Should Know About Acute Gonorrhea in Male. A. L. Wolbarst, New York.—p. 1118.
96 Melanoderma Arsenicale Produced by Cacodylate of Iron. D. W. Montgomery, San Francisco.—p. 1121.
97 Normal and Abnormal Psychiatry. B. Lemchen, Dunning, Ill.—p. 1123.
98 Some Medical Antecedents. J. A. Hagemann, Pittsburgh.—p. 1125.
99. *New Method of More Accurately Determining Upper Border of Liver by Means of Percussion. G. L. Laporte, New York.—p. 1126.

99. **Method of Determining Upper Border of Liver by Means of Percussion.**—Laporte percusses from above downward in the mammillary line, laying the end phalanx of the index finger firmly on the chest wall parallel to the ribs and using a medium strong percussion stroke. At the first change of sound from clear pulmonary resonance to a somewhat duller sound a line is drawn on the chest wall. Then place the finger over the liver dulness at the lower costal margin and percuss with the lightest possible percussion (threshold percussion, so light that over liver dulness hardly any sound is audible) upward until a slightly more resonant percussion sound is perceived (lower lung border). Another line is placed on the thorax at this point. The true upper liver border lies half way between these two lines. In all Laporte percussed 100 cases to determine the upper liver border, all of which were controlled fluoroscopically. Of these 100 patients forty-one were examined by the old method. In the vast majority of these, the upper liver border was placed too high, sometimes as much as 5 or 6 cm. Fifty-nine cases were percussed by the new method and the results were found to be much more accurate, very frequently exact, and *seldom varying more than 1 cm.*

Medicine and Surgery, St. Louis

April, 1918, **2**, No. 4

100 Army and Tuberculosis. P. K. Brown, San Francisco.—p. 389.
101 Examination of Enlisted Men for Tuberculosis. P. Gath.—p. 396.
102 Tuberculous Lymph Glands of Neck Treated by Roentgenotherapy. C. A. Pfender, Washington, D. C.—p. 400.
103 Diagnosis of Early Pulmonary Tuberculosis. M. F. Morris, Jr., Chelsea, Mass.—p. 418.
104 Practical Diagnosis of Tuberculosis from Treatment Standpoint. W. H. Watterson, Chicago.—p. 429.
105 Predisposing Factors in Etiology of Tuberculosis, Theoretically Considered—Plan to Reduce Greatly Incidence of Tuberculosis. O. H. Brown, Phoenix, Ariz.—p. 434.
106 Treatment of War Cases of Tuberculosis by Artificial Pneumothorax. M. E. Lapham, Highland, N. C.—p. 443.
107 Phthisiophobia. S. A. Slater, Oil City, Pa.—p. 447.
108 Occluded Renal Tuberculosis—Autonephrectomy. J. R. Caulk and H. C. Greditzer, St. Louis.—p. 453.
109 Roentgen Diagnosis of Early Pulmonary Tuberculosis. M. J. Hubeny, Chicago.—p. 457.
110 Causation and Prevention of War. J. Dworetzky, Staten Island, N. Y.—p. 487.

New York Medical Journal

June 29, 1918, **107**, No. 26

111 Prevention of Hydrophobia. H. L. Abramson, New York.—p. 1209.
112 Defective Vision; Its Pathologic Significance. A. Gumbiner, New York.—p. 1214.
113 Sarcoma of Corpus Callosum. J. Byrne and A. H. Harrigan, New York.—p. 1217.
114 Tetany. C. E. Hyde, Bridgeport, Conn.—p. 1218.
115 Dichloramin-T in Treatment of Wounds. J. C. Seal, New York.—p. 1222.
116 Acute Febrile Entity with Vomiting, Somnolence and Acetone. H. Lowenburg, Philadelphia.—p. 1220.
117 Gastro-Intestinal Diseases in Aged. S. Floersheim, New York.—p. 1223.

Pennsylvania Medical Journal, Athens

June, 1918, **21**, No. 9

118 Treatment of Fractures of Neck of Femur; Whitman's Abduction Treatment. G. M. Dorrance, Philadelphia.—p. 551.
119 Pneumococcic Peritonitis. E. W. Meredith, Pittsburgh.—p. 556.
120 Treatment of Fracture of Patella. C. D. Schaeffer, Allentown.—p. 558.
121 Surgical Factors in Tuberculous Peritonitis. L. J. Hammond, Philadelphia.—p. 561.
122 Treatment of Chronic Hypertrophic Rhinitis. E. J. Stein, Lancaster.—p. 564.
123 Traumatic Sixth and Seventh Nerve Paralysis; Operative Treatment with Functional Recovery. T. J. Moran, Pittsburgh.—p. 568.
124 Treatment of Malignancy in Mouth and Throat by Radium. R. H. Boggs, Pittsburgh.—p. 571.
125 Functional Tests of Kidney in Diagnosis and Prognosis. O. H. P. Pepper, Philadelphia.—p. 575.
126 Radium in War Surgery. W. H. Cameron, Pittsburgh.—p. 579.

Public Health Journal, Toronto

June, 1918, **9**, No. 6

127 Trail of Medical Vampire. F. Paul, Toronto.—p. 249.
128 Venereal Diseases as Communicable Diseases. M. M. Seymour, Regina, Sask.—p. 255.
129 Relation of Alcohol to Acquisition of Venereal Diseases. G. Bates.—p. 262.
130 Why It Is Worth While to Construct Sewerage Systems in Small Towns of Ontario. F. A. Dallyn.—p. 271.
131 Case of Generalized Vaccinia. J. G. Fitzgerald.—p. 278.
132 Botulism. E. C. Dickson.—p. 280.
133 Social Background. Children as Wards. P. J. Bench.—p. 286.
134 Social Control and New State. F. U. Stapleford.—p. 287.

Southern Medical Journal, Birmingham, Ala.

June, 1918, **11**, No. 6

135 *Treatment of Locomotor Ataxia and Genral Paresis by Intraspinous Injections of Bichlorid of Mercury. R. B. McBride, Dallas, Texas.—p. 407.
136 Practical Discussion of Carminatives. G. M. Niles, Atlanta, Ga.—p. 411.
137 Cercomonas Diarrhea and Its Management. S. K. Simon, New Orleans.—p. 414.
138 Dental Foci and Diseases Related. T. P. Hinman, Atlanta, Ga.—p. 419.
139 Rural Tuberculosis as Health Problem. H. Boswell, Magee, Miss.—p. 422.
140 North Carolina Plan of County Health Work. B. E. Washburn, Raleigh, N. C.—p. 425.
141 Latent Manifestations of Syphilis in and About Joints. E. S. Hatch, New Orleans.—p. 431.
142 Scrotal Skin Grafts in Severe Injuries of Penis. S. R. Benedict, Birmingham.—p. 438.
143 Cancer of Penis; Report of Case. M. Y. Dabney, Birmingham.—p. 443.
144 Use of Radium in Nonmalignant Uterine Hemorrhage. C. J. Miller and E. L. King, New Orleans.—p. 449.
145 How Industrial Surgeon Can Best Cooperate with Government During War. J. C. Bloodgood, Baltimore.—p. 453.
146 Retinochoroiditis Juxtapapillaris (Jensen's Retinitis). H. H. Martin, Savannah, Ga.—p. 455.
147 Some Advantages of Sitting Posture in Nose and Throat Operations Under Ether. F. D. Sanger, Baltimore.—p. 459.
148 Value of Ophthalmoscope, Retinoscope and Pupillary Disk in Refraction. A. B. Mason, Waycross, Ga.—p. 466.

135. **Treatment of Locomotor Ataxia and Paresis.**—McBride employs mercuric chlorid intraspinally. From one sixtieth to one fortieth of a grain of mercuric chlorid, dissolved in from 1 to 2 c.c. of distilled water, is introduced into one-half ounce or more of spinal fluid that has been collected from the patient into a glass funnel. Experience with some cases has convinced McBride that infected blood is capable of reinfecting the spinal fluid or vice versa. Where the interval between spinal treatments has been long he has found some fluids that had become negative to the spinal fluid tests, again become positive, and they became so before clinical symptoms were manifest in many cases. It was not until he combined the intraspinal and intravenous methods of treatment that both the blood and spinal fluid became negative to all tests. Results obtained by this combined method are very gratifying and the treatment leads to an absolute cure so far as clinical symptoms are concerned, for at least a good period of time. So far none diligently treated has fallen down.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

June, 1918, **26**, No. 6

149 Modification of Watkins Operation for Procidentia. W. E. Dicken, Oklahoma City.—p. 121.
150 Plea for More Careful Refraction. J. D. Pifer, Joplin, Mo.—p. 125.
151 Disorders of Metabolism; Report of Three Cases. H. J. Stacey, Leavenworth, Kan.—p. 136.

Texas State Journal of Medicine, Fort Worth

June, 1918, **14**, No. 2

152 After the War—What? B. L. Jenkins, Clarendon.—p. 57.
153 Educational Function of Institutions Caring for Tuberculous. B. Cornick, San Angelo.—p. 63.
154 Study of Venereal Diseases. A. I. Folsom, Dallas.—p. 60.
155 Study of Cancer. R. W. Knox, Houston.—p. 63.

seems to be somewhat more fixed there. With violent respiratory movements, it is the anterior septum which more especially flaps to & fro. Thus yes when an opening is made in the pleura, tho' it is the anterior septum which is apt to rupture & cause double pneumothorax. When the dog is on its back, the heart falls backward & the bulging of the ant. mediast. sept. is made more easy. Whereas when animal is on belly the heart falls forward & supports the ant. septum hence the flapping of the septum, the interference with respiration of lungs on sound side, ~~the [illegible]~~ & the bulging (?) on inspiration of the open side, cannot so readily occur.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 8, 1918, **1**, No. 2997

1 Utilization of Muscles of Stump to Actuate Artificial Limbs. V. Putti.—p. 635.
2 Relation Between Heat-Stroke and Malignant Malaria. C. E. H. Milner.—p. 638.
3 Basal Leptomeningitis Resembling Botulism. S. T. Steward.—p. 639.
4 Early and Effective Reduction and Fixation of Gunshot Fractures of Femur. O. H. Williams.—p. 639.
5 *Agglutination in Diagnosis of Dysentery. C. J. Martin, P. Hartley and F. E. Williams.—p. 642.
6 *Postoperative Pulmonary Embolism Due to Condition of Blood. A. L. Smith.—p. 644.

5. **Agglutination in Diagnosis of Dysentery.**—The authors tested the serum from 151 cases of dysentery from whose stools bacilli of this group had been isolated, and found that in only fifty-eight did the patient's serum contain ten or more agglutinin units, that is, less than 40 per cent. of the persons who had recently been infected by a member of the Flexner-Y group exhibited an agglutinin content in the serum of ten or more units. In every case of proved Shiga infection the patient's serum agglutinated the standard agglutinable culture used, and this agglutination was always complete in the highest dilution of the patient's serum tested. These results indicate that in the case of infections due to *B. dysenteriae* Shiga determination of the agglutinin content of the patient's serum constitutes a valuable method of diagnosis.

6. **Postoperative Pulmonary Embolism.**—Smith says that if the full normal proportion of water is present in the blood before operating pulmonary embolism will not occur. Replace by the rectum the amount of liquid lost by vomiting, catharsis, sweating, hemorrhage and urine, either during the operation or immediately after it. Encourage the patient to move the lower limbs freely, if not during the first two days at least during the next ten. Give the patient abundance of water between meals and during the night; it may be hot or cold, sweet, sour, or salty, in the form of lemonade, barley water, weak tea without milk, or beef tea; a jug and drinking cup with spout should be left within reach so that it may be taken when wanted without waiting for the nurse to come. Speedy operating lessens embolism because it means less hemorrhage, and less sweating and less loss of water from the system. Round pointed needles with flat eyes are much less likely to cause hemorrhage than ones with cutting edges, and should alone be used in the abdomen.

Edinburgh Medical Journal

June, 1918, **20**, No. 6

7 Perforated Gastric and Duodenal Ulcer. W. O. Wood.—p. 358.
8 Cerebrospinal Fever. P. W. Maclagan.—p. 370.
9 Training of Student of Medicine: Teaching of Materia Medica and Therapeutics. T. R. Fraser, C. R. Marshall, W. C. Sillar and R. Stockman.—p. 380.
10 Id. Teaching of Public Health in Curriculum of Medical Students. J. Robertson, M. Hay and H. Stewart.—p. 398.

Journal of Tropical Medicine and Hygiene, London

June 1, 1918, **21**, No. 11

11 Case of Blackwater Fever with Prowazekia in Urine. E. T. Wright.—p. 113.
12 Genus Endoplasma Castellani, 1914. S. L. Brug.—p. 114.

Lancet, London

June 8, 1918, **1**, No. 4945

13 *Kineplastic Amputations. V. Putti.—p. 791.
14 Methods of General Anesthesia in Facial Surgery. R. Wade.—p. 794.
15 So-Called Functional Symptoms in Organic Nerve Injuries. J. S. B. Stopford.—p. 795.
16 Conception of Regression in Psychologic Medicine. M. Nicoll.—p. 797.
17 Hernia of Urinary Bladder. H. Blakeway.—p. 799.
18 Effect of Convection Currents on Agglutination. W. W. C. Topley and S. G. Platts.—p. 800.

13. **Kineplastic Amputations.**—Kinematic plastics, or kineplastics, is the term applied to any kind of bloodless or operative plastics that tend to economize, restore, or substitute muscular masses which can be employed toward imparting direct and voluntary movement to an artificial limb. In an actual, or antecedent, amputation or disarticulation, the tendon and muscle, provided they have the necessary physiologic protection (skin, vessels, nerves, etc.) can generally be used for the kinematic prosthesis, provided that they admit of the formation of an artificial point of attachment, to be protected in a similar manner.

Kinematization can be effected, or prepared for, at the time that the primary amputation is made; it can also be done on stumps that have already healed. Motor flaps may vary as to their number, position, shape and function. The most elementary and the most commonly used, are the clava and ansa motors, and also those obtained by means of the canalizing, or tunnelizing, of the muscular masses. As regards the number, the motor can be single, double or multiple; in function it can be either unimotor or plurimotor. When the motor is made to execute two opposite movements in succession one to the other it is called alternative. According to the position they occupy motors are either terminal when placed at the extremity of the stump, or extra-terminal should they be placed in the continuity of the stump. Up to the present the upper limb has been the part that has been the most frequently kinematized, but the number of successful cases of kinematization of the lower limbs is daily increasing.

Putti says that skin flaps, muscular insertions, various bone and tendinous fragments and segments of limbs, which would seem utterly superfluous under ordinary circumstances for the preparation of ordinary stumps, are to be considered of the greatest value in view of the future kineplastics. A motor flap, in order to correspond with the object for which it is made, must conform to the following requirements: 1. It must possess every requisite for withstanding a firm, resisting and painless, grip, also a traction that, in not a few instances, may attain a high degree. 2. It must be provided with a sufficient amount of functional muscular tissue to guarantee the accomplishment of the task that will be demanded of it. The primary conditions for obtaining the first requisites are: 1. That the motors be covered with skin in perfect condition, well nourished, and provided with a normal degree of sensibility. 2. That, with regard to its shape and dimensions, the motor be of a size suitable for the fastening of the hooks, wings, and reds that are destined to transmit the functional movement to the artificial limb. The muscular masses must be sought for and obtained from among those of which the stump still disposes, and that, on account of their anatomic structure and physiologic disposition for the production of broad, strong and independent contractions, are best adapted to the task.

As the tendon is the element best adapted for the transmission of muscular contractions, it must be largely employed for the formation of motor flaps. Should the tendon be missing the muscles must be utilized either by including muscular bundles within the terminal motors or by tunnelizing the muscular masses in order to obtain extra-terminal motors. The antagonistic powers, indispensable to all active movement, must be provided either from the stump itself, by the formation of motors with elements belonging to muscular groups of opposite action, or from the artificial limb by means of elastic resistance in the opposite direction to the resistance offered by the motor flap.

With a view to gaining both space and integuments it may be advantageous, at times, to shorten slightly the bony stump and to perform excision of superfluous muscular masses; this, however, depends on the bone being sufficiently long to allow it. In order to provide such materials as may be missing in loco recourse may be had to the numerous methods that modern plastic surgery places at our disposal, as, for instance, skin, muscular, aponeurotic, or osseous transplantation, etc. Arthroplastics, with the interposition of aponeurotic, flap, may be utilized so as to render mobile those stump segments which, through stiffness and ankylosis, have become unusable. By these same means neo-arthrosis can be created in the continuity of the stump, thus giving the motor flap the power to develop a leverage action.

As a result of kineplastics, it is possible to utilize those stumps which, up to the present, had always been held as incapable.

of functional movement, as, for instance, the carpal stumps; the very short forearm stumps, and the disarticulation stumps. The surgeon who, in the case of shoulder disarticulation, succeeds in sparing the deltoid and pectoralis major, in covering these muscles with skin and in finding means for creating a point of attachment may be congratulated on having preserved for the benefit of the mutilated man a precious functional capital. With regard to the difficult problem of utilizing short forearm or short leg stumps, the solution will be enormously facilitated through the preparation of points of attachment that correspond to the insertion of the biceps and patella tendons.

Medical Journal of Australia, Sydney

May 18, 1918, **1**, No. 20

19 Agglutination After Administration of Typhoid and Paratyphoid Vaccines. W. K. Inglis.—p. 405. To be continued.
20 Practice of Anesthetics. E. H. Embley.—p. 410.

Quarterly Journal of Medicine, Oxford

April, 1918, **2**, No. 43

21 *Pathologic Anatomy of Primary Mediastinal Sarcoma. G. T. Hebert.—p. 165.
22 *Pathogenesis of Diphtheritic Paralysis. F. M. R. Walshe.—p. 191.
23 Importance of Mechanical Factor in Treatment of Pulmonary Tuberculosis. H. M. Davies.—p. 205.
24 Bone Changes Occurring in von Recklinghausen's Disease. E. P. Gould.—p. 221.
25 *War Nephritis. N. M. Keith and W. W. D. Thomson.—p. 229.
26 *Gunshot Wounds of Chest. J. M. F. Brickdale.—p. 267.

21. **Pathologic Anatomy of Mediastinal Sarcoma.**—Twenty-six cases were studied by Hebert. He says: Dyspnea is the most prominent symptom, and is often out of all proportion to the amount of lung tissue involved. It was present in all of the cases, and in the majority was very marked. Cough is generally a prominent, and often the earliest, symptom. The amount of sputum is, as a rule, small, and less than in cases of pulmonary tuberculosis. Malignant cells can occasionally be recognized in it. Hemoptysis is said to be an unimportant symptom, but it was recorded in 24 per cent. of the cases. Loss of weight, though not so pronounced as in most cases of extrathoracic malignant disease, is almost invariably present to a greater or less extent. Night sweats were present in 36 per cent. of the cases, and seemed to bear no relation to pyrexia. Pain is a common complaint, cyanosis, venous dilatation, and edema form an important group of symptoms. Dysphagia, hoarseness, and contracted pupil are not uncommon, and may be among the earlier symptoms. Vomiting and hiccough are more rarely seen. Coma, delusions, and mental derangement occur in the later stages. The symptoms due to metastatic deposits in the abdomen are few, and occur late. Cerebral metastases, when they occur, are more important.

Primary mediastinal sarcoma arises in the lymph gland structures of the thorax; that is, the thymus and the lymph glands, except in the cases of the rarer forms of sarcoma such as lipoma sarcomatodes and osteosarcoma and chondrosarcoma, and in the cases of growths of subpleural origin which should really be classed as endotheliomas. Starting in a gland the new growth enlarges, both by extension along lymphatics to neighboring glands and by breaking through the capsule and invading surrounding connective tissue, to form an irregularly lobulated tumor which increases in size in the direction of least resistance. The more rapidly growing of these tumors are, as a rule, soft and white, exuding a milky fluid on section. Small hemorrhages are often seen in the deeper parts, and generally some pigmented glandular remnants. There is usually an ill-defined capsule, continuous with the connective tissue stroma of the growth. Small grey or dull yellow areas of degeneration are present, especially in the more fibrous, more slowly growing tumors, some of which are of a daffodil yellow color. The metastatic deposits and the secondary extensions sometimes show the true features of the growth better than do the mediastinal glands. Degeneration is especially common in the pulmonary growth, owing no doubt to superadded septic infection.

Microscopically, the twenty-six cases of the series presented very similar characteristics. The cell common to all was an oval cell rather larger, sometimes much larger, than the lymphocyte, but, like it, possessing little cytoplasm. The nucleus has a capsule which sometimes appears to be rather shrunken, and it stains less deeply than does that of the lymphocyte. It contains a granular network and a well-marked eosinophil nucleolus. The cells are sometimes seen in pairs, and lie in a delicate connective tissue reticulum. Spindle cells, giant cells, and cells resembling the myelocyte were present in small numbers.

Primary mediastinal sarcoma invades the lung, in the majority of cases, by extension from the mediastinal glands. The trachea suffers, especially at its lower end, in almost all cases of mediastinal sarcoma. The main bronchi are found, generally to have suffered severely. Ten of the twenty-six cases showed invasion of heart muscle. Nineteen cases showed invasion of the pericardium. Cases of primary mediastinal sarcoma are often wrongly diagnosed as pulmonary tuberculosis, and occasionally as aortic aneurysm or as pulmonary fibrosis.

22. **Pathogenesis of Diphtheritic Paralysis.**—Walshe is convinced that diphtheritic paralysis at any rate in the initial and most characteristic of its stages, and of cranial nerve involvement, is an ascending infection of the central nervous system; the toxin elaborated in the membrane passing up to the medulla in the perineural lymph channels of the cranial nerves innervating the tonsils and fauces. There seems, then, to be a twofold mechanism in the production of diphtheritic paralysis in man. There is the initial sometimes severe and relatively short-lived local paralysis, due to the action of the toxin, which has ascended the nerves innervating the local lesion, on the nerve nuclei in the brain stem. Secondly, there is the later, longer-lasting generalized paralysis, which is part of the general sysetmic toxemia.

25. **War Nephritis.**—The data presented by Keith and Thomson were obtained from thirty-three specially selected typical cases of war nephritis. These cases are divided into two groups: Resolving and nonresolving. The resolving group is characterized by: (*a*) Rapid disappearance of edema accompanied by a distinct diuresis, copious excretion of chlorids and fall in blood pressure. (*b*) Rapid diminution in amount of albumin in urine. (*c*) Relatively good renal function. The nonresolving group is characterized by: (*a*) Slow disappearance of edema and delayed diuresis. (*b*) Persistent gross hematuria and persistence of albumin in the urine. (*c*) Development of permanent retinal changes. (*d*) Grave impairment of renal function. The acute nephritis following a focus of infection is a distinct entity from war nephritis. Relapses are of frequent occurrence in both types of the disease and are of serious prognostic significance.

Functional studies during relapse give many interesting results as regards the different methods of excretion of different substances by the kidney. An acidosis of moderate degree is present. In the resolving group this disappears with general improvement, but in the nonresolving group alkali therapy is required to restore the normal acid base relationship. Functional tests are of the greatest value in forming an opinion as to the extent of renal impairment. The gravity of certain cases may be entirely overlooked if one depends on clinical observation alone. In the early stages of the disease the excretion of phenolsulphonephthalein, the urea content of the blood, and the concentration of the chlorids in the urine are the most helpful. When the acute symptoms subside and the above tests give more or less normal results, Ambard's coefficert often shows evidence of a damaged kidney. Prognosis as to ultimate complete recovery, even in the resolving group, must be guarded. In the nonresolving group many cases show relatively early in the disease evidence of permanent renal change. The exhibition of alkali therapy is of distinct service in many cases, as shown not only by a restoration of the normal acid base relationship in the blood, but also by an improvement in renal function.

In cases terminating fatally in the first two weeks of the disease an intracapillary glomerulitis is the most striking histologic feature; in cases in which death has occurred in the fifth week there is found, in addition, a proliferation of the cells lining Bowman's capsule, intense edema of the interstitial tissue, small round celled infiltration and flattening of the epithelium lining the convoluted tubules. Cases in which death has been delayed to the seventh week of the disease show the proliferated cells of Bowman's capsule replaced by fibrous tissue, with resulting sclerosis of the Malpighian tuft, increase of interstitial tissue, and widespread and severe tubular-changes.

26. **Gunshot Wounds of Chest.**—One hundred and sixty-nine cases of injury to the chest came under Brickdale's observation during the last half of 1916. The patients were in most cases admitted within a week after the injury. The initial symptoms were collapse, pain, more or less shortness of breath (often only on exertion), fever, and hemoptysis. Hemoptysis occurred in 117, or 77.4 per cent. As a rule the amount is trifling and the symptom needs no special treatment. In twenty-seven cases diagnosed as laceration or bruising of the lung, in which there were no signs of hemothorax, hemoptysis occurred in all. Febrile symptoms are present in the large majority of cases. The physical signs of hemothorax are usually quite distinctive. They may be confirmed by roentgenography and exploratory puncture. Jaundice of the toxic type was observed in two cases. Abdominal injuries occurred in three cases, and were fatal. Lesions of the nervous system were noted in four cases. In two the spinal cord was damaged, producing paraplegia; in two there were peripheral nerve injuries producing paresis of the right arm. Hematuria occurred in one case. Subcutaneous emphysema was noted in twenty-one cases. Secondary hemorrhage occurred in one instance.

The gross mortality of the 150 penetrating wounds of the chest was nine, 5.6 per cent., but not all of these patients died of thoracic injuries. The deaths which were attributable to purely intrathoracic injuries were four in number, or 2.5 per cent. of the total number of cases. This includes one patient who died of septic pericarditis and pleurisy. Of the nine deaths which occurred in the entire series all but one, were due to septic infection. In twenty severely infected cases there were four deaths from purely intrathoracic causes (20 per cent.). When the fluid withdrawn by the exploring syringe is found to contain numerous bacilli, streptococci, or pus cells, the ordinary surgical treatment for an empyema is necessary. The lightly infected cases may be treated in the same was as those which are bacteriologically sterile, but they require careful watching, and often repeated exploration, as in some the infection becomes more severe, definite pus appears in the pleura, and reaction becomes necessary. In simple sterile hemothorax the treatment will depend on the size of the effusion and its effects on the position of the heart and the general comfort of the patient.

Archives des Maladies de l'Appareil Digestif, etc., Paris

April, 1918, **9**, No. 11

27 Lamblia Enteritis. R. Goiffon and J. C. Roux.—p. 601.
28 Enteroptosis in Connection with Inadequate Dietaries. M. Einhorn (New York).—p. 616.
29 *Paradoxic Chemistry of the Stomach with Gastric Ulcer. L. Timbal.—p. 625.
30 Ictero-Hemorrhagic Spirochetosis. R. Savignac.—p. 645.

29. **Deficient Gastric Secretion with Gastric Ulcer.**—Timbal has encountered eleven cases in which ulceration occurred in stomachs with achlorhydria or hypochlorhydria. These cases of paradoxic chemistry show that too *much* reliance must not be put on chemical exploration of the *stomach. As* a rule, however, there is some anatomic viciation which explains the abnormal functional findings, and some *inflammatory* process must have been responsible for *the anatomic* viciation. He warns further that in estimating the *findings* after a test meal the concentration is very *important. During* the digestion of the Ewald meal, the concentration at the thirtieth minute is 0.09; at one hour, 0.06, which *corresponds* normally to the acme of digestion, and then the concentration diminishes progressively down to 0.01. When the concentration is above 0.06, we can be confident that the acme of the digestion has not been reached; when below 0.06, that it is past. By this means we can estimate tardy or early hyperchorhydria and thus escape labeling certain cases as hypochlorhydria when there is really excessive secretion. In some the concentration was 0.07, which showed that the stomach contents had been withdrawn before the digestive process had reached its height. This explanation based on the concentration does not explain the cases lacking hydrochloric acid in any form. In his experience, these were mainly cases of ulcer on the lesser curvature. The symptoms with these ulcers, spasm of the cardia, salivation and nausea, suggest that the pneumogastric nerve is responsible for them, and that the ulcer injures this nerve directly. Syphilitic changes may cooperate in some cases.

Archives des Maladies du Cœur, etc., Paris

May, 1918, **11**, No. 5

31 Diastolic Murmur with Simple Perforation of Intraventricular Septum. L. Bard.—p. 193.
32 *Peripheral Signs of Cardiac Symphysis. C. Pezzi.—p. 201.

32. **Peripheral Signs of Cardiac Symphysis.**—Pezzi gives the tracings in some cases, showing the paradoxic pulse, the swelling of the veins of the neck in the course of a tranquil inspiration. It shows in the tracings by an arterial wave of moderate amplitude during expiration; the amplitude is larger during the respiratory pause. This is the paradoxic pulse of mechanical origin, which Griesinger and Kussmaul explained by mechanical factors causing the disappearance of the arterial pulse during inspiration on account of adhesion between the mediastinum and the pericardium. The paradoxic pulse of dynamic—generally respiratory—origin occurs only in forcible inspiration. It is accompanied by the collapse of the vein during inspiration, and shows in the tracings by an arterial wave higher during expiration, while during the respiratory pause the amplitude is moderate. The presystolic liver pulse is the most instructive sign of concomitant endopericardiac symphysis. This presystolic pulsation in the liver testifies that there is some obstacle impeding the right auricle from emptying its contents into the ventricle below. The auricle has to redouble its effort of systole in order to force its contents along, and this forces some of its contents back into the inferior vena cava as far as the liver. If the heart lies free in the pericardium, even if the latter is adherent to the mediastinum, there is no need for this extra effort. It becomes necessary however if the ventricle is encircled by a pericardium whose two sheets are fused together. This stiff shell prevents the normal play of both ventricle and auricle.

Archives de Médecine des Enfants, Paris

June, 1918, **21**, No. 6

33 *Visceral Spasms in Inherited Syphilis. H. H. Barbier.—p. 281.
34 Cultivation of Diphtheria Bacilli on Sweetened Gelose. E. C. Aviragnet and Le Soudier.—p. 299.
35 Recent Works on Effects on Infants of Fat-Free Diet. J. Comby.—p. 313.

33. **Visceral Spasms in Inherited Syphilis.**—Barbier reiterates that the nervous system of the child may suffer predominantly from inherited syphilis, the clinical picture simulating acute or tuberculous meningitis, epilepsy or insular sclerosis. If one bears in mind the possibility of syphilis as a causal factor in such cases, treatment may be instituted in time. Other manifestations on the part of the nervous system are periodical paroxysmal vomiting, attacks of enteralgia, and nocturnal enuresis. He describes in detail seven typical cases of paroxysmal vomiting in children of 4, 5, 7 and 10, in families with known syphilis in parents or grandparents. Two of the children were brother and sister. In some of the cases there were meningeal symptoms or other nervous manifestations. In one family one child had enuresis and recurring enteralgia; another, headache and vomiting about once a month, and a third, epileptiform attacks. The vomiting occurs spontaneously, with no connection with meals, often fasting. It is generally preceded by a few hours or days and is accompanied by violent frontal headache. There is no nausea; the child suddenly grows pale, and vomits in a gush. In some cases this was repeated twenty times in the twenty-four hours, and there was some blood in the vomit. The child returns to his play as soon as the attack is over. The intervals between attacks are irregular; there may be two or three a year or at longer intervals. They are rarely shorter than a few months, but the tendency may keep up for years to puberty. Lumbar puncture gives the clue as the Wassermann reaction is always positive, whether or not there is lympho-

cytosis. Any tendency to fever turns the scale toward tuberculous meningitis in dubious cases.

Bulletin de l'Académie de Médecine, Paris

May 21, 1918, **79**, No. 20

36 Early Vaccination of the Newborn. Wurtz.—p. 391.
37 Hemiplegia from Tuberculous Meningitis. T. Legry.—p. 393.

Bulletins de la Société Méd. des Hôpitaux, Paris

April 19, 1918, **42**, No. 13

38 *Reactions in Blood Serum and Spinal Fluid in Epilepsy. L. Babonneix and H. David.—p. 357.
39 Improvement in Leprosy under Cod Liver Oil. Balzer.—p. 360.
40 *Epidemic Lethargic Encephalitis. H. Claude.—p. 364.
41 *Epilepsy Consecutive to Meningitis. P. Sainton.—p. 368.
42 *Multiple Complications of Scarlet Fever. P. Nobécourt and H. Gimbert.—p. 373.
43 Tardy Tachycardia of Scarlet Fever. P. Nobécourt and H. Grimbert.—p. 378.

38. **Abnormal Reactions in Blood Serum and Spinal Fluid in Epilepsy.**—Epilepsy is unmistakably the result of lesions of the meninges and cortex, and in the majority of cases these can be traced to inherited syphilis. These statements by Babonneix and David are based on a number of etiologic, clinical and therapeutic arguments, and they now present further evidence in the reactions found in the body fluids of both the epileptics and their parents. In ten epileptics the Wassermann reaction was found weakly positive in the blood serum in seven and strongly positive in two; negative in only one case. In over 50 per cent. there was also slight lymphocytosis in the cerebrospinal fluid. Like tuberculosis and like acquired syphilis of the nervous system, inherited syphilis of the nervous system seems to proceed in waves, *poussées évolutives*.

40. **Lethargic Encephalitis.**—Claude describes a case of toxic-infectious encephalitis with somnolence, lethargy to such an extent that there was no psychic or motor reaction, incontinence of urine, and narcolepsy, with transient delirium. Headache, fatigue, somnolency, fever and general malaise were the first symptoms, and now, nearly three months later, there are still some apathy and loss of memory.

41. **Epilepsy Consecutive to Meningitis.**—Sainton describes a second case in which, six months after recovery from meningitis, epileptic seizures developed. In his first case the interval was one month. Netter has had epilepsy develop after cerebrospinal meningitis only twice in 253 cases.

42. **Complications of Scarlet Fever.**—The young soldier during his scarlet fever developed acute articular rheumatism, mitral endocarditis, nephritis and tardy tachycardia. The tachycardia was still evident in the tenth week, as an orthostatic tachycardia, although the heart and kidney disturbances had apparently long entirely retrogressed.

Paris Médical

April 27, 1918, **8**, No. 17

44 *Eosinophils in Pleural Effusions. Petzetakis.—p. 321.
45 Hemorrhage in Kinked Colon. R. Gaultier.—p. 329.

44. **Eosinophils in Pleural Effusions.**—Petzetakis declares that local eosinophilia is more common with pleural effusions than generally suspected. He reports here four cases of associated eosinophilia and basophilia with a hemorrhagic pleural effusion, or with traumatic hemothorax. The eosinophils in some cases reached 60 or 75 per cent. They seemed to have been formed directly in the pleura, the result of a special degeneration of the leukocyte elements which occurs only in an aseptic medium. The sterility of the fluid explains the lack of symptoms. He ascribes to this same mechanism the eosinophilia of convalescence. The vascular system dur- ing an effusion may be regarded as a closed aseptic cavity, conditions entailing degeneration of the leukocytes and con- secutive eosinophilia. The eosinophils in the pleural effusion get into the blood finally, which explains the tardy eosin- ophilia.

Presse M[illegible]dicale, -Paris

May 9, 191[illegible]26, No. 26

46 *Bone Grafting. L. Imbert.—p[illegible]33.
47 *Spinal Anesthesia. Desplas an[illegible]P. Millet.—p. 234.
48 Improvised Transfusion of Bloo[illegible]P. Thévenard.—p. 237.

46. **Bone Grafting.**—Imbert has made a special study of this subject, and states that the tibia seems to be better for bone grafting than the fibula or a rib, for reasons which he enumerates. Also that the final outcome of a graft cannot be estimated until after several years. He emphasizes further that the method of implantation of the graft is of prime importance; the best results are obtained when the graft is cut pointed to fit into a cavity made for it in the bone stump, or vice versa. This does away with the necessity for metal or other foreign body fixation. His experiments on animals always resulted in the complete absorption of a subcutaneous graft, but the focus of fracture in man, even when there seems to be a totally inert pseudarthrosis, still retains a latent bone-producing power which can be stimulated to action by some irritation. The implantation of a graft seems to be the most effectual means to accomplish this.

47. **Stovain Spinal Anesthesia.**—Desplas and Millet found that the stovain was all eliminated by the urine before the ninth hour in the fifty cases examined. The blood pressure dropped lower only in three of the forty men tested, and these were in severe shock when the anesthesia was begun. In all the others the blood pressure persisted normal or was brought down to normal. They are confident that in a number of the cases in which they were compelled to operate while the man was in profound shock, he would have succumbed with any other method of anesthesia.

Progrès Médical, Paris

April 20, 1918, **33**, No. 16

49 *Mental Disease among Combatants. H. Damaye.—p. 141.
50 Case of Acquired Morbid Fear. P. Voivenel.—p. 144.
51 Primary Suture of Shell Wound of Elbow in Man of 72. R. Didier.—p. 146.

April 27, 1918, **33**, No. 17

52 Primary Resection for Wounds of Joints. R. Leriche.—p. 149.
53 Simplified Transfusion of Blood. J. Fiévez.—p. 150.
54 Postoperative Meningitis. Lochelongue and R. Didier.—p. 151.
55 A Medical Officer under Napoleon. P. Voivenel.—p. 152.

49. **An Army Center for Nervous and Mental Disease.**—Damaye has classified the psychiatric cases that passed through his ambulance during the last two years. He compares the types observed with the events of the war taking place at the time. His classification includes 131 different types of mental disturbance. Mental and neuropathic phenomena are generally associated. Of the total 908 men, 647 were discharged cured or far on the road to a cure. Only 23 had to be sent to an asylum; 12 died; 31 tried to commit suicide. The symptoms in men who had been wounded in the skull were of the neurastheniform type observed after concussions and bombardments. The physical condition was generally poor in all the men. A calomel purge was given at once, and the men were not allowed anything but milk and water, with sodium bicarbonate, for several days. Iodin and arsenic, especially sodium cacodylate, were found extremely useful. The younger soldiers were inclined to react with convulsions, like children, under the influence of extreme fatigue or intense emotional stress.

Revue de Chirurgie, Paris

Sept.-Oct. 1917, **36**, No. 9-10. Published April, 1918

56 *Petrolatomas. O. Jacob and Fauré-Fremiet.—p. 221.
57 *Action of Hypochlorites. N. Fiessinger and R. Clogne.—p. 264.
58 Fractures of Lower Jaw. L. Imbert and P. Réal.—p. 304.
59 Projectiles in Mediastinum. R. Le Fort.—p. 320. *Continuation.*
60 *War Wounds of Heart. H. Costantini and M. Vigot.—p. 383.

56. **Petrolatomas.**—Seven cases are reported of tumors developing consecutive to injection of camphorated oil, the "oil" used being liquid petrolatum. The experiences on record with paraffin tumors should have warned against the use of petrolatum for the excipient. The tumors first became manifest from five to nineteen months after the injection. They did not modify the general health, but the pains from the tumors and their interference with the use of the limb compelled their removal in each case. There was recurrence of the tumors in every instance, evidently from some particles of the petrolatum left in the tissues. The tumors should

therefore be cut out by extensive excision as for a malignant growth.

57. **Biologic Study of Alkaline Hypochlorites in War Wounds.**—The conclusions of the extensive research reported are to the effect that the improvement realized in wounds treated by the Carrel continuous irrigation method is due more to the proteolytic action of the hypochlorites on mortified tissues rather than to any sterilizing action. The Dakin solution has a weak germicidal power, but on muscle tissue and in war wounds continuous irrigation with Dakin's solution, in the doses employed at present, does not realize a sterilization. All antiseptics may be classed in two groups: the cytopexic and the cytolytic, namely, those which coagulate the albumins in the wound and thus create a barrier between them and the deeper elements, and those which dissolve these albumins and thus sweep out and clean out the wound. The cytopexics are not antiseptics, and the cytolytics are only weakly antiseptic. The alkaline hypochlorites are cytolytic. Dakin's solution is the form with a constant constitution, and its action is tolerated by the tissues. Its antiseptic power is weak; the more albumins it dissolves, the more diluted its antiseptic action.

60. **Immediate Operations on the Heart for War Wounds.**—Costantini and Vigot emphasize that the operation should be terminated by transfusion of blood and that a curved and threaded needle should be used. This harpoons the wound, and the needle once planted is let go. By so doing, there is no risk of tearing the wall one is about to suture. Experiments on the cadaver indicate that ample access can be realized by resection of the fourth cartilage and a 3 cm. segment of the sternum. The loss of these tissues is immaterial, while this technic relieves the heart from rubbing against this portion of the sternum and cartilage. The symptoms from a war wound of the heart vary widely with the seat of the wound and the degree of the hemopericardium. A projectile in the heart muscle may escape detection with the roentgen rays. When the rays fail to show hemopericardium, intervention is not urgent, as a rule, although there is always a possibility of extensive hemorrhage into the pleural cavity. In two cases described the men recovered after immediate removal of the projectile. In a third case the operation would have been feasible but for a fatal abdominal wound. After death the proposed operation on the heart was done as planned, confirming the assumed premises. In a fourth case the man died after the operation, and necropsy revealed injury of the lung explaining the fatality.

Revue Médicale de la Suisse Romarde, Geneva

April, 1918, 38, No. 4

61 *Rupture of Aortic Valve from Muscular Effort. P. Reinbold.—p. 229.
62 *Treatment of Endemic Goiter. F. Messerli.—p. 248.
63 *Retention of Elements of Bile. P. Gautier.—p. 254.
64 *School Inspection in Rural Districts. S. Chapuis.—p. 260.

61. **Traumatic Rupture of Aortic Valve.**—Reinbold remarks that the aortic valve is less able than the mitral to resist rupture; in Ranelletti's compilation in 1910, there were forty-nine cases of rupture of the aortic valve to twenty-seven of the mitral, two of the tricuspid and one of the pulmonary valve. With rare exceptions, only the valves in the left heart are liable to rupture from physical effort alone. In a case described, the man of 43 had always had good health. There was no history of scarlet fever or rheumatism. He does not smoke and is temperate in drinking and nothing could be found to throw any light on the suddenly developed valvular lesion except a slip on some stone steps, when he made a violent effort to keep from falling, seizing the balustrade with both hands. As he did this he felt a sharp pain, radiating to the left side of the head, with vertigo. He nearly fainted, but recovered and walked on feeling an oppression in his left side and noticing a peculiar sound in the heart region. The physician found a lesion in the aortic valve.

Such lesions are important from the standpoint of accident insurance and workmen's compensation. A man with a ruptured valve is unable to do heavy work thereafter, and this detracts materially from his earning capacity. In athletics the muscles are keyed up and on the alert to respond to the demands of the sport, but in a sudden slip on an icy staircase the muscles are caught unawares, and the surprise and wrench are incomparably greater. Under the influence of the surprise the effort made is excessive. On the other hand, if the previous condition was known with greater precision, there probably would not be so many cases recorded of "rupture of a sound valve." The Swiss compensation laws provide for cases in which the injury is the result of an accident acting on a previously damaged organ. This principle is new in their jurisprudence, and it imposes on the profession the necessity for being on the alert to detect all the factors in the injury. The compensation of course is estimated lower when it is a question of a previously damaged organ. A retrospective diagnosis is often difficult, but it is indispensable in these cases. In the case reported, even in the absence of any known predisposition, there is still a possibility of arteriosclerosis, syphilis, and infectious endocarditis. In a middle aged man, arteriosclerosis seldom is revealed by peripheral manifestations. In the elderly, on the other hand, arteriosclerosis can be regarded as an organic modification entailed by age, and it cannot be accepted as of special causal importance. As the Wassermann reaction is relatively inconstant, a negative response leaves a query. In Germany the indemnities for traumatic heart lesions are estimated at 50 or 70 per cent. but these lesions sometimes permit light occupations. The physician's word is decisive here.

62. **Benzonaphthol in Treatment of Goiter.**—Messerli has already published several communications on the benefit, with goiter, from systematic disinfection of the intestines. His works have been duly summarized in these columns, as on page 607 of The Journal, Feb. 19, 1916. The goiters likely to be influenced by this means are the large soft goiters of the follicular, hypertrophic and parenchymatous types. He reports two new cases which apparently confirm anew his statements. The profile views of the young men show no trace of the goiter after five weeks of benzonaphthol, three doses daily, each 0.5 gm. The circumference of the neck at three levels had grown smaller by 4, 6 and 4 cm. in one case and by 5, 5 and 1.5 cm. in the other. The disinfection of the intestines has to be kept up continuously. It does not interfere with iodin treatment of the goiter. His experience confirms MacCarrison's statements as to the causal importance of intestinal abnormalities.

63. **Dissociated Retention of Elements of the Bile.**—Gautier remarks that the easiest and simplest means of research in this line is with the urine. The Grimbert method is useful for determining the bile pigments, with the Hay sulphur reaction for the bile salts. Study of the blood dust always confirmed the urine findings in his experience, and this research on dissociated retention threw light on the functional capacity of the liver. It revealed even slight insufficiency, transient or durable, of the liver cell. Repeated examinations allow close surveillance of liver functioning, and he advocates this as a reliable aid in the diagnosis and prognosis in every case of suspected liver disease. He gives a few charts showing retention of bile pigments and even of urobilin in the course of pneumonia and scarlet fever; in some cases of cirrhosis of the liver there was retention merely of bile pigment.

64. **Medical Inspection in Rural Schools.**—Chapuis comments approvingly on Pahud's article on this subject (summarized in these columns, May 18, 1918, p. 1508). Chapuis, however, insists that the medical inspection should watch over the children's earlier years, to ensure better physical material when the children enter school. In the villages in his district, eighty of the 449 children entering school for the first time last year had signs of rachitis, and the chest was not of normal shape. In one village this was recorded of sixty-six of the 275 children. The country life and fresh air and exercise could not outbalance the effects of injudicious feeding in infancy. He has had two large cards printed, one with directions for feeding infants six months old, and the other, from 8 to 18 months old. Whenever the mothers pay heed to the card the infants speedily throw off their rachitis and begin to thrive.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 18, 1918, **48**, No. 20

65 Physiology and Pathology of the Placenta. Guggisberg.—p. 625.
66 *Congenital Syphilis of Bones. A. Hotz.—p. 631.
67 *Cretinism. Finkbeiner.—p. 637. Conclusion.
68 Arrosion of Aorta by Gravity Abscess. K. Schnyder.—p. 655.

66. **Cure of Bone Lesions from Congenital Syphilis.**—Hotz gives a series of roentgenograms which show the gradual return of the bones to normal under the influence of specific treatment. The patient was a 3 months' infant with various manifestations of congenital syphilis, severe osteochondritis, various superficial lesions, and coryza. In the ten weeks' course of treatment, practically the normal shape of the bones was restored. The bone lesions of older children take much longer to retrogress than infants', and the restitution is never so complete. In his case the periostitic process was slower in retrogressing than the osteochondritis, but in both the tendency to rapid recovery of normal conditions was amazing. The Wassermann reaction was still positive when the bone lesions had entirely retrogressed, as also in Hasler's similar case, while in Therstappen's case it had veered to negative before the bone lesions had entirely retrogressed.

67. **Cause of Cretinism.**—Finkbeiner found 56 per cent. males to 44 per cent. females in the 119 cretins in the Nollen district. The smaller the villages the larger the proportion of cretins, as also of deafmutes and of conscripts rejected on account of goiter. The native-born furnish the overwhelming majority of cases. He accepts this as disproving the infection theory, as a pathogenic parasite could not distinguish between those born in the region and those moving in later. Healthy persons from other regions need not fear cretin offspring, not even when one parent is native-born. But a marriage between the native-born, even when both are healthy, is liable to yield cretin children, as there is usually some more or less distant blood relationship between the people in small, stable communities. Even moving to an endemic-free region does not avert this doom. It is not the place but the family taint that is responsible for the endemic. He reiterates that immigration is absolutely free from danger while emigration is no protection. Nothing was found in this district to sustain in any way the theory of water, soil, the thyroid or infection as responsible for cretinism. The data all point to inbreeding, and that only by heredity can this form of degeneration appear in a family. Cretinism prevails in remote, shut-in communities, and it dies out when the place becomes accessible by a railroad, or when industries bring in new blood. This dying out of cretinism as transportation is improved is the reverse of what occurs with infectious diseases. For example, Chagas' disease (which has certain features resembling cretinism), has spread along the route of the railways in Brazil.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 28, **39**, No. 34

69 Roentgen Study of Large Intestine. A. Berti.—p. 333.

May 2, 1918, **39**, No. 35

70 Radiotherapy of Uterine Fibromyoma. L. A. Oliva.—p. 345.

Policlinico, Rome

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71 Bacteriologic Diagnosis of Dysentery. A. Ascoli.—p. 461.
72 Serotherapy of Anthrax. L. Lollini.—p. 467.

May 26, 1918, **25**, No. 21

73 *Spirochete Jaundice. E. Bravetta.—p. 485.
74 *Reenforcing the Heart Sounds. A. Amati.—p. 489.
75 *Tuberculosis in Soldiers. C. Baduel and G. Mendes.—p. 492.

May, 1918, **25**, Surgical Section No. 5

76 *Hematoma Aids in Bone Regeneration. L. G. Gazzotti.—p. 129.
77 *Secondary Hemorrhage after Ligation. G. Razzaboni.—p. 145.
78 Gas Infection of War Wounds. V. Calo.—p. 158. Continuation.

May, 1918, **25**, Medical Section No. 5

79 *Gastric Pneumatosis. A. Ceconi.—p. 129.
80 *Treatment of Empyema. E. Morelli.—p. 153.

73. **Spirochete Jaundice.**—Bravetta draws the clinical picture of this disease from the hundreds of cases he has had in his care. There is an incubation of a week or two, then the period of invasion which lasts from two to six days, with fever usually so slight that it is not noted, but there is no jaundice although there may be intense muscular pains, suggesting rheumatism; or digestive disturbances with headache, suggesting typhoid. Then follows the stage of jaundice, during which the temperature drops to normal or even below and the pains subside. There is usually an interval of a day between defervescence and the onset of the cholemia. It is accompanied by weakness, at times extreme, the spleen and liver enlarged. A special feature of the disease is that the temperature runs up again after an interval of from four to six days. The glands also swell, especially in the right axilla. There were no hemorrhages from skin or mucosa in his cases, but a tendency to rhinorrhagia was common. As the jaundice and albuminuria subsided, the depression was extreme, with vague pains, low blood pressure and brownish tint of the skin and the prostration and convalescence were long protracted.

74. **Reenforcing the Heart Sounds.**—Amati has found that the heart sounds can be rendered more distinct by pressing with the finger on the abdominal aorta during auscultation. He has noticed also that percussion of the retrocardiac region does not yield appreciable findings in normal conditions, but when a patient has been lying for a long time on his back, the heart settles down closer to the rear wall, and percussion may show a dorsal area of dulness. Percussion from the rear may also reveal conditions in the left auricle, the outline of the heart, and possibly cardioptosis.

75. **Tuberculosis in the Army.**—This communication, presented at a recent interallies conference at London, relates what Italy is doing for tuberculous soldiers. The war has rendered it possible to detect tuberculosis in the entire male population between the ages of 18 and 44, and to ensure that the tuberculous get proper treatment and instruction in prophylaxis for themselves and others. This has been realized by the close cooperation between the war department and the public health service, with the Italian Red Cross to supplement them. Soldiers found to be tuberculous are given a pension for three years and the family receives financial aid while he is being given institutional treatment. The effort is made to have the soldier discharged from the army on account of tuberculosis cared for in a sanatorium near his home. The suspects among the repatriated prisoners of war are sent on in the same train to the seaside sanatorium at Nervi, which has accommodations for 1,200. The suspects from the army are sent to the sanatorium near Florence. Both are new and well equipped sanatoriums, beautifully located. The Red Cross has two trains for the tuberculous, four climatic sanatoriums with a total of 900 beds, and three institutions for the moderately severe cases, total 640 beds. The army has seven regional sanatoriums, with a total of 3,808 beds, eleven institutions for the advanced cases, besides the Nervi and Florence sanatoriums, and centers in each army corps for prolonged observation and diagnosis by the most approved methods. Some corps have more than one.

When a soldier develops tuberculosis, it is usually within a month or two of his entrance on active service. Those who have been at the front for one, two or three years very seldom develop tuberculosis. This has convinced every one that the stress of service is so liable to fan a latent tuberculosis into a flame, that the most stringent, searching tests are now applied to keep out of the army those with tubercle bacillus infection in any form and in any stage. Those already in the army are being weeded out as rapidly as possible. All have to pass through the institutions for confirmatory differential diagnosis, and here they are trained in prophylactic measures before being returned to civilian life. If they need treatment, they are pensioned the same as if they had been wounded in the service.

76. **Influence of Hematoma on Healing of Fractures.**—The extensive experimental research reported by Gazzotti seems to show that the presence of a hematoma stimulates the periosteum to greater regenerating activity.

77. **Artery Walls with Secondary Hemorrhage.**—Razzaboni always found evidences of an infectious process in the walls after ligation and secondary hemorrhage. (See Abstract 87, p. 155.)

79. **Gastric Pneumatosis.**—Ceconi has encountered a number of cases in which symptoms seemed to indicate heart or

lung disease but the sole cause of the disturbances was the extreme distention of the stomach with air or gas and vagotonic spasm of cardia and pylorus. The vagotony was the most prominent feature of the cases. The displacement of the diaphragm entailed dyspnea, and the displacement of the heart entailed sometimes palpitations and other disturbances, sometimes suggesting even angina pectoris. The clinical picture corresponds to that with dyspeptic asthma, flatulent dyspepsia, reflex digestive neurosis, the cardiac neurosis of public officials, psychogenous dyspepsia and gastrocardiac neurosis as described by various writers. Ceconi insists, however, that the clinical picture depends directly and exclusively on the hypertension of the stomach. Examination later, during the absence of symptoms, will show that all is in order once more, and that any assumption of heart or lung disease is unjustified. The relief and improvement of the disturbances during and after exercise aid in excluding true heart disease.

80. **Prophylaxis of Empyema After War Wounds.**—With the technic described with an illustration, Morelli has succeeded in curing 85 men with "closed" war wounds of the thorax, with complicating empyema in only 2 cases, and empyema developed in only 6 cases in 22 with "open" wounds of the thorax. Of the total 110 cases of war wounds of the thorax, all the men recovered except 5 and none of the deaths were from hemorrhage. The recovery was complete, both anatomic and functional, in nearly every instance. In his experience with 400 cases of war wounds of the chest, the advantages of the most active intervention at the earliest moment have been impressed on him beyond the possibility of question. After the surgical toilet the wall must be closed airtight, and he accomplishes this with a long, inflatable rubber bag, narrowing in the center so that it fits firmly in the breach. A tube passes through the rubber bag and ensures effectual drainage. As the bag is inflated through another tube, it closes the breach in the chest wall air tight. The drain tube is connected with a vacuum jar apparatus arranged so that the pressure in the apparatus balances that in the chest. Any effusion or pus upsets the balance, and the fluid is aspirated out through the drain tube, after which the balance is spontaneously restored again, compelling the expansion of the lung. An arrangement of cocks permits flushing the pleura through the same drain tube, followed by aspiration of the fluid. He uses some disinfectant fluid at first, thus flushing out the cavity several times a day, and less frequently later. He describes his technic without waiting for further experience as the remarkable improvement realized to date has been so striking and so constant that he wants others to benefit by it. He has found a simple stout rubber bulb answers the purpose of the aspiration apparatus in certain mild cases. It is connected with the drain tube with a three-way cock, one for aspiration of the endopleural fluid and to promote expansion of the lung, one for releasing the fluid aspirated out, and the third for expelling the air without increasing the suction.

Riforma Medica, Naples

May 11, 1918, **34**, No. 19

81 *Slow Endocarditis. A. Ceconi.—p. 362.
82 Displacement of Foreign Bodies in Skull and Spine. A. Cortesi and F. Bonola.—p. 365.
83 Gas Gangrene. E. Aievoli.—p. 369.

81. **Slow Endocarditis.**—Ceconi describes a case he encountered ten years ago in a young woman. It began with a gallstone cholecystitis. This was followed by an irregular slight fever over five months, when a violent chill ushered in septicemia which finally led to endocarditis with a fatal termination over seven months later. The clinical course and necropsy findings are compared with the literature on the subject. The colon bacillus was found in the gallbladder but a small streptococcus was found in the heart walls and valves. He warns that endocarditis should always be suspected with septicemia, even when no symptoms call attention to the heart. Endocarditis is one of the sources of bacteriemia which remain longest unknown and unsuspected. We know now that bacteria do not proliferate in the blood but perish in the blood. In septicemia, consequently, the bacteria found in the blood are being constantly supplied from some possibly unsuspected source. This compels extra surveillance of the heart as the possible source of the bacteria.

Rivista Critica di Clinica Medica, Florence

April 20, 1918, **19**, No. 16

84 Diarrhea and Dysenteriform Enteritis in Troops on Active Service. A. Roccavilla.—p. 181. Conclusion.

May 4, 1918, **19**, No. 18

85 Landry's Paralysis of Poliomyelitis Type in a Syphilitic. A. Salmon.—p. 205. Commenced in No. 17, p. 193.
86 Kernig's Symptom in War Psychoneuroses. L. Siciliano.—p. 209.

Annaes Paulistas de Medicina y Cirurgia, S. Paulo

September, 1917, **8**, No. 9

87 Biology of Dermatobia Hominis. A. Neiva and J. F. Gomes.—p. 197.
88 *Skunk Eats Cobra. F. Iglesias.—p. 210.
89 Paraspecific Serotherapy by the Mouth. P. Burnier.—p. 212.

October, 1917, **8**, No. 10

90 Absence of Side Walls of Nose. J. A. Galvão.—p. 221.
91 *Serotherapy of Pregnancy Toxicoses. V. Marcondes.—p. 234.

88. **Skunk Immune to Cobra Venom.**—Iglesias found that a young skunk brought up in captivity attacked and ate venomous snakes. The skunk was repeatedly bitten by the cobras, but showed no effects from this at the time or later. Skunks are numerous in Brazil, and he remarks that if they prove generally to be the ophiophagous mammal this specimen certainly is, they should be protected.

91. **Serotherapy of Pregnancy Toxicoses.** — Marcondes ascribes to pregnancy toxemia all the pathologic manifestations from headache to fatal eclampsia. The glands with an internal secretion are not able to keep pace with the production of toxins from the fact of the pregnancy. By injecting serum from a pregnant woman we may be able to supply the deficit, and this has proved its usefulness in the clinic. The inconvenience of obtaining human serum for the purpose suggested the use of serum from pregnant goats, and this proved extremely effectual in the two cases described. One was a case of pregnancy dropsy, asthma, itching urticaria and acne; the other of uncontrollable vomiting. Only 5 c.c. of the antitoxic goat serum was injected, repeated in five days, and by the third injection the symptoms had all disappeared except slight albuminuria. In the case of uncontrollable vomiting, with albuminuria and urticaria, 10 c.c. of the serum were injected daily, and the vomiting ceased after the third day.

Brazil-Medico, Rio de Janeiro

April 6, 1918, **32**, No. 14

92 *Defective Development of Muscles. A. F. de Magalhães.—p. 105.

April 13, 1918, **32**, No. 15

93 Flagellate Parasites. VII. O. O. R. da Fonseca.—p. 113.
94 Eugregarina Parasites of Arthropods. VI. C. F. Pinto.—p. 113.
95 *Hemiplegia of Larynx. E. de Moraes and C. Fraga.—p. 114.
96 Methylene Blue and Arsenic Preparation in Treatment of Noma. C. de Rezende.—p. 115.
97 Application of Carrel Method at Buenos Aires. C. Barcellos.—p. 116. Commenced in No. 14, p. 106.

92. **Deformities from Defective Development of Muscles.**—There are five types of deformities in the young infant, varus equinus, valgus, bilateral talipes and permanent flexion of the arm. De Magalhães in analyzing them shows how each is the result of defective development of certain muscles. Persevering massage and manipulations may start these muscles to physiologic development in time, and thus there is hope of correcting some if not all of the deformities.

95. **Hemiplegia of Larynx.**—The man presented a typical example of what is known as Jackson's syndrome. On waking one morning recently he found swallowing and speaking difficult and the left arm was weak so he could scarcely lift it. The symptoms were those from complete paralysis of the left side of the larynx, similar to what has been published as the result of a shrapnel ball in the region. As the patient was known to be syphilitic, specific treatment was applied on the assumption of some syphilitic lesion in the bone nearby, and the prompt restoration to practically normal conditions confirmed the corectness of this surmise.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 13, 1918, **1**, No. 15

134 *Varicocele of the Orbit. W. P. C. Zeeman.—p. 986.
135 *Gonorrhea in the Female. T. Passtoors.—p. 995.
136 Case of Chyluria. N. J. van Dam.—p. 1007.

134. **Varicocele of the Orbit.**—The man had complained for six years that his right eye felt as if it were pushed forward, but only close inspection showed asymmetry. The protrusion seemed more pronounced when he stooped over. Zeeman explains this intermittent exophthalmos as the effect of a varicocele. The enlargement of the veins of the orbit is accompanied in all such cases by enlargement of the entrance into the sinus cavernosus. This explains the enophthalmos when the head is held in certain positions. He gives six roentgenograms of his case and discusses operative treatment. Some have injected an iron astringent, others have excised the varicose veins, but the results of the latter have not always been very encouraging. The ultimate outcome in the cases is not known. Removal of the convolute of veins may be indicated when there seems to be danger of injury of the optic nerve or there is recurring hemorrhage in the orbit.

135. **Gonorrhea in the Female.**—Passtoors discusses in turn and in detail the diagnosis and treatment of gonorrheal lesions in the urethra and vicinity, in the uterus and its annexes, and in the paragenital region. The question as to when a gonorrheal uterine lesion is cured is easier for the venereologist to answer than the gynecologist, as the former usually has both man and wife in his care, and the one serves as a control of the other. When Passtoors finds no more gonococci in the secretions on repeated examinations then he makes a provocative injection of vaccine, the first day 50, the second day 100 and the third day 200 millions. The fourth day secretions from the uterus, obtained with a blunt curet, are inoculated on culture mediums and smears are made. The cultivation of the gonococci is materially facilitated by having the secretions taken at the laboratory by the bacteriologist and placed at once in the incubator, without any chance for chilling the gonococci.

Hospitalstidende, Copenhagen

May 1, 1918, **61**, No. 18

137 *Arc Light Treatment of Osteitis. O. Strandberg.—p. 545.
138 Narcolepsy. V. Askgaard.—p. 556.

137. **Arc Light Treatment of Osteitis.**—Strandberg reports the cure of nine patients under carbon arc light exposures for chronic osteitis of the mastoid or temporal region consecutive to middle ear disease. The course took up to nine months in some. The benefit was equally pronounced in the tuberculous and the apparently nontuberculous cases with a protracted course.

Ugeskrift for Læger, Copenhagen

April 11, 1918, **80**, No. 15

139 *Uveo-Parotid Fever. S. Bang.—p. 571.
140 Self-Regulating Apparatus for Adding Saline in Infusing Arsphenamin. O. Jersild and M. B. Pedersen.—p. 578.
141 *Blood in the Stools of the Tuberculous. P. Bogason.—p. 582.

139. **Chronic Parotitis with Iritis and Facial Paresis.**—Bang says that fifteen cases of this clinical picture have been published since attention was first called to it in 1905 by a Danish physician. Bang adds two more cases to the list, in a boy of 13 and a girl of 15, and tabulates the findings in the total seventeen cases. The subchronic iridocyclitis and parotitis extend over months, with low, remittent fever. Both eyes are usually affected and in not less than five cases the outcome was total blindness. The parotitis was always bilateral, and in six cases there was simultaneous tumefaction of the lacrimal glands. This is without precedent except in Mikulicz' disease (bilateral chronic parotitis and dacryoadenitis). Fridericia has recently asserted that we have every reason to accept Mikulicz' disease as a form of pseudoleukemia, as all stages of transition have been observed between the pure Mikulicz disease and extensive lymphomatosis. This throws light on the uveoparotitis cases, especially those with lymphadenitis. The enlarged spleen and the febrile course are analogous to the febrile forms of pseudoleukemia. The nodules in the iris may likewise possibly be lymphomatous infiltrations. Schou has reported a case apparently typical except that the parotid glands seemed to be normal. The finding of giant cells and of epitheloid cells in the nodules in the iris in four cases was assumed at the time to indicate a tuberculous origin, but Bang advises classing the uveoparotid syndrome—until further light is obtained—in the pseudoleukemia group rather than as tuberculosis. In any event, it is most certainly not a disease *sui generis.*

141. **Blood in the Stools of the Tuberculous.**—Bogason found that purulent sputum gave constantly a positive benzidin reaction for occult blood. Consequently swallowed sputum may be responsible for positive findings in the stools, and intestinal lesions need not necessarily be incriminated.

Upsala Läkareförenings Förhandlingar

1917, **22**, No. 3

142 *Action of Alcohol on Muscles. C. Gyllenswärd.—p. 141.
143 Nutritional Tests with Sugar on Surviving Frog Muscle. C. Gyllenswärd.—p. 162.
144 *Accidental Heart Murmurs. E. Kylin.—p. 188.
145 Operative Cure of Traumatic Epilepsy. A. Troell.—p. 213.
146 *Rupture of Spleen. G. Nyström.—p. 221.

142. **Influence of Alcohol on Muscular Work.**—Gyllenswärd has applied Blix's test of the orientation capacity of the hand as a means of determining the amount of disturbance induced by small amounts of alcohol. The test requires coordinating action of several groups of muscles, and thus is more exacting than simple ergograph tests. The test amount of alcohol was always 5 c.c., taken before rising, and the exercise was done fifty minutes later. The subject is seated with his back against the back of the chair, his right arm hanging vertically, holding a pencil. A paper screen stands at arm's length before him, and in the center of the paper is a mark. The right arm is lifted, without moving otherwise, and the mark in the paper is touched. Then the arm drops back to its former position. The eyes are then closed and the procedure is repeated. A series of such movements are done alternately with eyes open and shut. The distances between the central dot and the other marks on the paper are added together and the sum divided by the number of times the attempt was made. This gives an index of the steadiness of the muscles involved. There was always a falling off of from 20 to 50 per cent. when the alcohol was taken. Several control solutions were used, so the subject did not know whether he was being given the alcohol or not on the day in question.

144. **Accidental Heart Murmurs.**—Kylin analyzes previous publications on this subject and reviews his own experience with 513 apparently healthy recruits, and 300 male hospital inmates of a corresponding age. Among the recruits, 18.1 per cent. presented these accidental murmurs, and 28 per cent. of the hospital inmates. In practically all with accidental heart murmurs the blood pressure was slightly above normal, while the capacity for physical endurance was almost invariably reduced to a certain extent.

146. **Rupture of Spleen.**—Nyström describes three cases in which intestinal paresis appeared as a complication of rupture of the spleen. He has found only one case on record of ileus from this cause. The spleen was sutured or tamponed, and all recovered, but the first two patients required a second operation to correct the ileus. Nyström reports further a case of rupture of the spleen nearly its entire length. He saved the spleen by tamponing alone, but has worked out on the cadaver a more certain method, namely, by tying a ligature around the pedicle, close to the spleen, with other ligatures around the spleen itself, like barrel hoops, each held firm in place by being knotted at right angles to the ligature around the pedicle. All this can be prepared before the abdomen is opened, so that the whole will fit like a bag over the spleen. The only tying necessary then will be the stout catgut passing around the pedicle. Possibly a tampon might be held in place by rubber bands passed around the spleen. A stout silk thread through each band could stretch it enough for it to be cut when the time came to remove it.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 71, No. 4 Chicago, Illinois July 27, 1918

CONSERVATION OF CHILD LIFE A NATIONAL RESPONSIBILITY *

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Every man was a baby. Unfortunately most men have forgotten the fact. Not the least of these is the majority of the medical profession, judging from their lack of desire for information about and their want of interest in the welfare of infants. The medical profession must interest itself in the saving of the lives of the babies, if the future population of the country is to be considered. Far-sightedness was never more necessary than at the present time. The adage, "Do unto others as you would be done by" never had a greater application than when applied to the infant. Let us mature adults, and particularly members of the medical profession, be leaders and advisers of our lay brothers and let us put ourselves in the place of the infant. What would we like the adults of the nation to do for us? This is easily and readily answered in the heart of every one. Then why not do for the infants and children what we would in their place have done for us? Naturally the lay members of the society look to their medical advisers to lead the way. This can be done only by knowing it ourselves, and it can be known only by interesting ourselves in the subject. This does not apply to the members of the medical profession who have been working in behalf of child welfare, more particularly the pediatrician, but to those members whose work in most instances is so spectacular or confined to such narrow paths as to cause them to forget that there are other branches of medicine, and that they were once infants and children themselves.

Let us not be short sighted and consider only the requirements as regards our Army of today during this great world crisis, but let us benefit, if not by the advice of those at home who are advocating energetic activities in behalf of early life, at least by the experiences of the other great nations of the world who now appreciate more than ever the necessity of keeping the birth rate as far above the death rate as it is possible to do.

The two great alarm clocks of public sentiment are dollars and human lives and unfortunately it usually requires a tremendous loss of either or both to cause a thorough awakening. We are now experiencing both and are gradually being awakened, but unless there is a proper and complete realization of the necessity of the conservation of early life, the awakening will be decidedly appalling.

In any successful mechanical or architectural work, the ultimate outcome by analyses will be shown to depend on the proper fundamental factors utilized in its accomplishment. It is not different in regard to the human being, but because of the more finely adjusted and delicate factors, more thorough consideration of the fundamentals must be given, and the completed being must have the proper attention during his various periods of growth and development so that the fully grown adult may be of maximum efficiency and of greatest value to society. It is undeniable that the loss of life is greatest in the first two years, and during this period the nearer to birth the greater the death rate. It is very likely, also, that the loss of life in utero may approach if not exceed the death rate of the first few months of extra-uterine life. At least the work of conservation of the human life begins before birth and, yes, even before conception. The problem is one which concerns us most vitally and needs most careful study.

It is a noteworthy fact that the rejections by the examining boards for the Army in the United States were between 25 and 30 per cent., and in England the percentage of healthy persons accepted in the army was about 40 per cent. of the applicants, there being a still further number who did not apply. Are these facts not significant as to the ultimate human products in these two great countries during the past? England has awakened to her problems and has achieved wonderful results, and her future will undoubtedly be benefited. Why should we have to follow? Why not lead? No time was ever more propitious than now. Beginning during this era of educational propaganda, our great country should and can safeguard its strength and growth so that its future will be secure. It is essential to enlist the assistance of the layman in order to derive the greatest cooperation. By so doing, public sentiment may be so framed as to have proper legislation enacted which will facilitate the coordinated efforts of the various agencies employed in behalf of early life, working to a common end.

In many places it may be that necessary laws are already on the statute books, but where they are not they should be passed. Laws are worse than useless, if when enacted they are not enforced. Hence, it is necessary to enlist public sentiment that the laws after once being passed may also be applied.

The great work of the conservation of child life should include the following periods: first, parents of the future children; second, prenatal care; third, parturition; fourth, newly born; fifth, infancy; sixth,

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* Chairman's address, read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the neglected period—from 2 years to school age; seventh, school child to puberty; eighth, puberty; and ninth, adolescence. Naturally it will be seen that there is a circle involved which after being properly regulated will become an easy matter to supervise, but we are confronted with the problem today which is to be attacked at each one of these periods at the same time. The first period has reference to the venereal problem which has been shown to be greatly influenced favorably by the plans already practiced by our Army. The municipal and state health boards throughout the country are now assisting the government by having proper laws passed making venereal diseases reportable. The results of these laws will surely show the wisdom of such legislation which will redound to the credit of the nation.

TABLE 1.—RESULTS OF SAVING OF LIFE IN THE UNITED STATES *

Years	Lives Saved	Death Rate		No. Lives Lost	Lives Remaining	Value		Amount in Dollars
1 to 5	500,000	0.3%	=	1,500	498,500	$ 500	=	$ 249,250,000
5 to 10	498,500	0.026%	=	130	498,370	1,500	=	747,555,000
10 to 15	498.370	0.019%	=	95	498,275	2,500	=	1,245,687,500
15 to 20	498,275	0.031%	=	154	498,121	3,500	=	1,743,423,500
					1,993,266			$3,985,916,000
				OR				
1 to 5	750,000	0.3%	=	2,250	747,750	$ 500	=	$ 373,875,000
5 to 10	747,750	0.026%	=	194	747,556	1,500	=	1,121,334,000
10 to 15	747,556	0.019%	=	142	747,414	2,500	=	1,868,535,000
15 to 20	747,414	0.031%	=	232	747,182	3,500	=	2,615,137,000
					2,989,902			$5,978,881,000

* At the end of twenty years, the saving in life, and life expressed in dollars would be 1,985,266 lives and $3,985,915,000, respectively, for a yearly saving of 100,000 lives; or 2,989,912 lives and $6,008,881,000, respectively, for a yearly saving of 150,000 lives, allowance being made at the present death rate for loss of life during each five year period among the lives previously saved.

With the loss of life incident to war, the value on human lives expressed in dollars will necessarily be increased.

The values given in the table are those of Irving Fisher, in Table 2, using the mean for the various periods.

The second period is closely associated with the first, but has not yet received the attention it deserves. The same may be said of the third, fourth, fifth and sixth—clearly those periods of life on the supervision of which is founded the strength of a nation and its future. Greater attention has been given to the seventh, eighth and ninth, though there is yet much to be done in these periods.

TABLE 2.—REPORT OF IRVING FISHER ON NATIONAL VITALITY, JULY, 1909

Age	Net Worth in Dollars	Age	Net Worth in Dollars
0	90	30	4,100
5	950	50	2,900
10	2,000	80	700
20	4,000		

Attention is particularly directed in this paper to the second, third, fourth, fifth and sixth periods.

More or less provision has been made for each of these periods, with probably the exception of the sixth or neglected period (so named for the lack of consideration accorded it), and yet during this period of rapid growth the child is exposed to more outside influences than at almost any other time of life. It is during this time that many illnesses may be averted which may have their immediate or remote ill effects.

More attention is given by our government to animal and plant life than to any one of the five periods enumerated and purely because of shortsightedness. If our municipal, state and national governments do not realize the importance of their burden, it should be taken up as a war measure. It is as much so, considered from the point of view of the future of the nation, as the safeguarding of the soldier of today. Had proper attention been directed to this work a generation or so ago, our present national strength would be far greater.

Imagine, as is shown in Table 4, a yearly loss of over 300,000 lives, one half of which, or about 150,000, is acknowledged to be due to preventable causes and not yet the awakening of the government to this responsibility. Imagine this tremendous loss of life and yet no adequate measures adopted by the medical section of the Council of National Defense for its cessation as a war measure! Should we have the loss of as many lives among our soldiers, or even half as many—what a howl it would cause throughout our whole nation. And yet, are not the infants potential soldiers? If viewed from no other angle but an economic one, would it not be a saving to the government, as shown in the figures of Tables 1, 2 and 3, to look to the conservation of its infant population?

It cannot be said yet what will be the result of the world war on the birth rate and death rate in this country, but the effect of war on warring countries is reflected in a diminished birth rate and usually an increased death rate, as shown in Table 5. It is hardly conceivable how this country can be an exception, particularly when added to the influencing factors incident to war all the allied nations are dependent on her for more or less foodstuffs, which will result, at least, in a more limited and restricted diet for the pregnant women, nursing mothers, and infants and children in the United States.

TABLE 3.—AVERAGE SOCIAL VALUE OF AN INDIVIDUAL *

United States	$4,720
England	4,140
Germany	3,380
France	2,900
Austria-Hungary	2,720
Russia	2,040

* *The social value of an individual is that which the individual will restore to the community in any way whatever from his personal profit or earnings.* (After Barriol, M. A.: Jour. Roy. Statistical Soc., 1915, 88, 365.)

It is, therefore, incumbent on us pediatricians to assist to our utmost in this conservation work in view of the losses incident to war, in order to provide for the future of our nation; but the federal government should direct the work.

Imagine what the saving of 100,000 or 150,000 lives a year for twenty years would be to the nation—a saving of 1,993,266 to 2,989,902 lives, or a population from nearly two to nearly three millions greater than otherwise it would be, as shown in Table 1. Indeed, the increase resulting from proper supervision would be greater, because, with the educational propaganda carried on with the governmental stamp, the people would learn to think more of their health and mode of living, and in many ways the entire country would be benefited. The result would be a bettering of the nation with persons of stronger and healthier constitutions who would live longer and enjoy more comfortable later lives.

It is evident that the problem is an economic one as well as a humanitarian one and may be measured in dollars and cents. While it is shown in Table 4 that there is an estimated loss of 315,129 human lives under 5 years of age, more than half of which are acknowledged to be due to preventable causes, Table 1, based on the saving of only 100,000 or 150,000 lives a year, gives an idea in money of what the saving of the very conservative numbers will amount to in twenty years, namely from $3,985.916,000 to $5,978,881,000, after which time the saving will be increased in a compound ratio owing to these saved lives becoming parents.

TABLE 4.—SEX PROPORTION AT BIRTH AND SEX INFANT MORTALITY IN THE UNITED STATES*

	Total	Per 1,000 Population	Per Cent.
Births	776,304	24.9	
Deaths (all ages)	436,114	14.0	
Births greater than deaths	....	10.9	1.1
Births:			
Male	398,615	....	51.3
Female	377,689	....	48.7
Male greater than female	....	....	2.6
Deaths:			
Male (infants)	....	110	11.0
Female	....	89	8.9
Male greater than female	....	....	2.1
Remaining:			
Male	334,768	....	50.75
Female	344,075	....	49.25
Male greater than female	....	....	1.5

Estimated Deaths in Same Area (436,114)	In 31 per Cent. of Population	In Total Population (Estimated)
Deaths in same area of children under 5 years: 22.4% of 436,114	97,690	315,129

* From Statistics in Registration Area; 31,150,803 or 31 per cent. of total estimated population.

These calculations are estimated on the figures obtainable from those registration areas where births and deaths are recorded, which areas comprise only a part of the population of the United States. Many municipal and state political organizations are willing to favor national requests even when they are in conflict with their individual views, whenever they are shown to be of value as war measures. It cannot be denied that the conservation of the nation's resources is a war measure particularly when it concerns her man power or potential army. This is the time, therefore, that all movements should be uniform and nationwide. The commencement of this work, in order to be able to determine what its progress will be, is to secure reliable information now for future comparisons. The proper control of registration of births and deaths is the fundamental work for this statistical guide.

Complete registration of births and deaths is a goal which can be reached in a short time, if Congress will enact a law placing the matter under federal control.

The importance of complete registration of births and deaths is apparent to all. The number of births in a locality and the number of deaths under 1 year of age must be known, or no accurate knowledge can be had of the infant mortality rate—a most reliable index of the community well being. Other valuable health indexes are death rates for certain specific causes, as typhoid fever, tuberculosis, etc.

So far, the registration of births and deaths has been under the control of state and local authorities. In some parts of the country, good registration laws have been enacted and are being well enforced, but in other sections, little has been done along this line. The net result is that only twenty-eight of the forty-eight states are now in the registration area for deaths, and only twenty states in the registration area for births—areas where the registration laws are good and registration is at least 90 per cent. complete. To be sure, conditions are improving each year and the states are realizing more and more the importance of complete registration of births and deaths, but if it be left to the states to enact and enforce adequate laws, it may be a hundred years before birth and death registration will be even approximately complete throughout the United States.

On the other hand, federal control would insure at once the uniform enforcement of registration throughout the country.

It would not be necessary to change the good registration laws now existing in many states nor to replace the competent registration officials throughout the country. With a federal law calling for the proper registration of births and deaths, providing penalties and empowering the Department of Commerce to prosecute when necessary, the existing registration machinery in the various states, if kept up to a federal standard, could be allowed to remain.

Inasmuch as the constitution provides that a representative must have attained the age of 25 years, a senator the age of 30, and a president the age of 35 years, it is evident that Congress has the power to enact legislation for the registration of births, also, since the selective draft laws call for men of specified ages, and as it has been difficult in some instances to prove the ages of these men, the enactment of proper laws for the registration of births and deaths is now a federal necessity.

Undoubtedly there are communities doing maximum efficiency work. Also, there are communities doing their best with variable results and, lastly, there are those not doing their part either because of inertia, or because they are not yet awake.

TABLE 5.—BIRTH AND DEATH RATES IN COUNTRIES ENGAGED IN WAR WHERE COMPARATIVE STATISTICS ARE AVAILABLE

Country	Birth Rate per Thousand					Death Rate per Thousand				
	1913	1914	1915	1916	1917	1913	1914	1915	1916	1917
United Kingdom	24.1*	....	22.2	21.1≠	....	14.3*	....	15.6	14.6†	
England, Wales	24.1*	....	22.0	20.9≠	17.8	13.8*	....	15.7	14.4‡	14.1
Scotland	25.5*	....	23.9	22.8	....	15.5*	....	17.1	14.6	
Ireland	22.8*	....	22.0	21.1	....	17.1*	....	17.6	16.5	
France	19.0*	18.0§	....	....	....	17.7*	19.6§			
Italy	31.7*	31.1§	....	....	....	18.7*	17.9§			
Roumania	42.1*	42.5§	....	....	....	25.9*	23.8§			
Germany	20.9¶	....	....	21.3¶	10.9¶	15.8¶	....	....	10.5¶	13.1¶
	28.3°	....	....	....	....	15.8°				

* Figures from Annual Report, Reg. Gen. Eng. and Wales for 1915.
≠ Rates based on population estimated for the purpose by Department of Vital Statistics.
† Includes only civil deaths and population as regards England and Wales.
‡ Civil population only.
§ Latest report from "Statesman's Year Book" for 1917.
¶ "Vital Statistics in Germany" in the Daily Review of the Foreign Press, April 1, 1918, taken from Veröffitlichungen des kaiserlichen Gesundheitsamts, 1917, 41. Statistics from twenty-five cities with a population of 200,000 or more inhabitants, the aggregate number being 11,000,000, or one sixth of the total population of the German Empire.
° Figures from "Statistiches Jahrbuch für das deutsche Reich," for 1915.

The greater death rate for Germany in the civil population for 1913 over 1916 and 1917 is explained by the larger death rate under 1 year in 1913 before the birth rate had been so tremendously reduced.

In order to accomplish the greatest results, there should be a uniformity in plan, interesting every state to enact laws which should be uniform, which should conform to those which the nation should adopt and which should be enforced properly.

The direction of the work should be by or with the advice of medical men who are properly qualified in child welfare work, and who have devoted their endeavors to the early years of life.

Great appreciation should be felt for the various bodies already doing their utmost in this great work, unassisted by the government, and their entire cooperation should be further solicited which would be greatly aided by a national backing. There should be a coordination of all available agencies, all working to a common end and with the closest cooperation, which is absolutely essential. There should be no attempt at individualizing, but the spirit of self-sacrifice should prevail and methods should be adopted to produce the quickest, best and most uniform results.

Experience has shown that with governmental influence the most expeditious results may be obtained, and since the conservation of child life is such a vital issue to the welfare of a government in providing for its future strength and protection, its jurisdiction should be exercised in this work as much so as in the proper training and conserving of the youths of today who were the children of yesterday.

As adequate measures are not now being employed in the conservation of child life, a certain amount of responsibility lies with the pediatric men whose representative body in the American medical profession is this section. Your chairman has felt this and wishes to bring it to your attention for your consideration. Let it not be said in the future that the pediatric men of the medical profession in the United States were derelict in their duties. Some definite stand should be taken, expressed in the form of a resolution and placed before the proper authorities. This should be done not as a means of disposing of the matter, but in such a way as to place the responsibility with them, assuring them of our earnest, sincere and anxious desire to cooperate in every way possible by placing ourselves at their disposal in this work.

Pus Infection in the Industries.—Albaugh, director of the Division of Industrial Hygiene of the Ohio State Department of Health, in the Ohio *Public Health Journal*, April, 1918, summarizes the report of the division on the presence of furunculosis and wound infections among certain classes of factory workers in the state. These afflictions are said to be unusually prevalent among operatives of lathes and cutting and milling machines who come in contact with cutting compounds and cutting oils, and occur with greater frequency in summer. He says this represents an important economic loss to the company as well as to the men affected. Cutting compounds and cutting oils are vehicles for carrying pus-forming bacteria and are responsible for engendering and spreading much furunculosis and wound infection. The oils and compounds used appear inert to bacterial life, being neither germicidal, antiseptic nor directly supportive. Employees are probably most responsible for the infection of the oils, but accidental contaminations can occur and sterilization is probably necessary. Employees should be educated against spitting into lubricants and reservoirs, interchange of towels and wiping rags; clothing should be frequently changed and cleansed and they should seek prompt dispensary care of all wounds and skin eruptions. Only sterile oil products should be purchased from the manufacturer.; heat sterilization of reclaimed oil should be carried out before it is redistributed. Disinfectants mixed with the oil are of doubtful value. A commercial cresol disinfectant with a phenol coefficient of 3.21 in the presence of organic matter was not effective unless used in a 2 per cent. solution, and in this strength its use is impracticable, according to investigations carried out.

PROTECTION OF INFANCY IN FRANCE

WHAT HAS BEEN DONE AND WHAT REMAINS TO BE DONE IN THE FIGHT AGAINST INFANT MORTALITY *

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FRANCE

The struggle against infant mortality is one of the most urgent problems at present before France. The birth rate is already much diminished because of a variety of factors which cannot, however, find place here; also, we have suffered most heavily in the present war.

Since shortly after the end of the nineteenth century, infant mortality had been noticeably diminished, thanks to the progress of hygiene, but nevertheless not sufficiently, and, since the beginning of the war, as a result of economic changes, we are obliged again to note an increase. If France wishes to continue her rôle in the world, it is necessary that she protect her children more and more.

Formerly in France as in all countries, infant mortality was very great, but the families were much more numerous, and thus the population increased, as is evidenced by the colonization of Louisiana and Canada. In the sixteenth and seventeenth centuries, the families often numbered ten or twelve children, whereas today a family of seven is considered large; but of these ten or twelve children, six or eight were frequently lost in the first years of life. We find the proof of this in the so-called *livres de raisons*, which were kept annually by the head of the family in certain of our old French provinces. There were written in these diaries not only the number of receipts and expenses, the revenues of the farm, the hay or wheat in the granary, the wool of the sheep, but also the principal events of the family life—the marriages, births, baptisms and the illnesses of the children. It frequently appeared that a second or third son was christened the same name as the first; for example, "Pierre" might be found three times because of the fact that the previous children had died at an early age, and in order to preserve the name of the family, the same name had been given to another who had been born; and if this one died, it was given to still another.

At this time only the strongest children survived, or those whom the mother cared for particularly during the first few months, as a result of an instinctive knowledge. In order to diminish the mortality, the children were sent to the country as soon as possible after birth. This custom of sending the children to the country was very general among the French noblesse and bourgeoisie of the eighteenth century.

It is to Jean-Jacques Rousseau that we owe the first campaign in France in favor of maternal nursing.

PUERICULTURE

Maternal nursing is the basis and the natural method for the protection of infancy. To have every French mother practice it is the object of our league against infant mortality, of which I shall speak later. But this first feeding by the mother is not always possible, and in some cases it must be supplemented by cow's milk. On the other hand, even the best mother who nurses her own child must still be guided by the laws of hygiene everywhere necessary, but especially so in the great modern cities.

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* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

After having trusted for too long a time to maternal instinct and good sense, which are useful but not sufficient, the scientific progress of the nineteenth century has demonstrated that in all divisions of activity, scientific methods are superiór to empiricism, and so for the children there has been constructed a true science of puericulture, following the word of Pierre Budin, founder of the first "Children's Clinic."

In fact, it is from France, under the influence of this eminent teacher, too soon removed from his activity in French medicine, that this movement originated. My country has already accomplished a great deal along these lines, but it has not been possible to do all that was desired. At the inauguration of the Exposition of Puericulture of the American Red Cross at Lyons, my friend Jean Lépine employed a most accurate comparison. He said that for the last fifty years France had been comparable to a man with his right arm constantly raised for his defense, and who could only employ his left arm for his immediate needs.

If our French Red Cross could do nothing for the children before the war, the reason lay in the fact that it was obliged to prepare for the wounded which were expected, and every one knows that it has not failed in its task.

The civil department of your American Red Cross came, therefore, to offer its services, at the side of many other organizations in the struggle against infant mortality. Not only, my dear friends, do you collaborate with us on the field of battle to free the world from German barbarity—from might over right—but also to aid us in reconstructing the France of the future, in order that, with you, she may stand with arm outstretched, holding the flaming brand of liberty. We are deeply grateful for all that you have done, and we thank you from the bottom of our hearts.

MEASURES FOR THE PROTECTION OF CHILDREN

I will now explain what we have already done, in order to protect our children, what remains to be done, and that which we hope to accomplish, with your fraternal aid.

The works of charity, organized for abandoned children, date from several centuries ago, and the name of St. Vincent de Paul is intimately associated with the creation of orphanages. They were especially developed in the eighteenth and nineteenth centuries. The Hôpital des Enfants assistés at Paris and the Service des Enfants assistés, in our Ministry of the Interior, have made an official organization of these. But because of the fact that the mortality was very great in these agglomerations of children in the orphanages of the cities, the Assistance publique (the great governmental charity of France) organized the placing of children in the country in peasant families, guaranteeing the success of this proceeding by requiring administrative and medical supervision. On the other hand, with the beginning of mechanical industries, Marbeau, in 1844, founded the so-called "crèches," that is to say, "day nurseries," destined to receive children while the mother was working in the shops or factories. They have multiplied and are now very numerous in the great cities and industrial districts.

In 1846, a great philanthropist of Mulhouse in Alsace, Jean Dolfuss, founded the "Association for Pregnant Women" which gives an indemnity during the period of confinement and nursing to the workwomen of the factories. Along this same line of progress there originated a little later, the "Mutualité maternelle," which had for its object the aid of the mother at the time of confinement. Each woman gives a small amount of money annually, which is increased by gifts made by charitable persons. This capital permits, for all the participants at the moment of accouchement, the services of a physician or of a midwife, and also the receipt of an allocation permitting the woman to remain at rest for some weeks after the confinement. The results obtained by the Mutualité maternelle have caused a decrease in infant mortality of at least 70 per thousand births, and what is further very important, the passage of the Paul Strauss Law, of which I shall speak later.

France, in fact, possesses two principal laws destined for the protection of early childhood. The first was promulgated under the leadership of the eminent philanthropist, Théophile Roussel, and is known in all countries as the Loi Roussel. It was passed in the year 1874, and has for its particular aim the protection of children placed by their parents in nursing homes. Every child under 2 years, confided to a wetnurse, an ordinary nurse, or simply another woman for care, comes automatically under government supervision.

The second law, that of Paul Strauss, was adopted shortly before the war, in June, 1913, with the addition of certain amendments in June, 1914. It has to do with the protection of the mother during pregnancy and of the mother and child during the first four weeks after birth. It permits the mother to have complete rest and to begin the nursing of her child under the best possible conditions. This law has been a decided step in advance, but its success will depend on whether or not assistance is given and supervision maintained during all of the first year at least.

This surveillance exists especially in the districts where the mothers have the advantage of nursing clinics. Because of this, there was founded in France in the year 1902, by Budin and Paul Strauss, the Ligue contre la mortalité infantile or in other words The League Against Infant Mortality, which aims at the encouragement throughout the country of the formation of these so-called *Consultations de nourissons,* or "nursing or baby's clinics." Further it aims to aid all societies, private and public, which have to do with the protection of mothers and young children.

The first Consultation de nourrissons was founded by Pierre Budin, professor of obstetrics in l'Hôpital de la Charité, at Paris, in 1892. He desired especially to organize a system which would "follow up" the children born on his service, and which would furnish necessary counsel and aid to the mothers during the first year. He obtained excellent results, and very soon similar clinics were established in various hospitals and dispensaries of Paris. Further, his example was promptly followed in the provinces, and in 1894, Dufour founded at Fecamp, a small town in Normandy, an analogous institution, to which he gave the name of Goutte de lait, literally translated meaning, "a drop of milk." This institution aimed at diminishing the infant mortality by employing the following methods:

1. Giving to the mother counsel and encouragement, inducing her thus to nurse her own child.

2. In case her own milk was insufficient to explain supplementary feeding to her and supply her with the necessary sterilized milk for this purpose.
3. In case the mother by reason of certain physiologic or material causes was unable to nurse her child at all, to furnish her with clean, sterilized milk, indicating to her the rules for this artificial feeding.

Since that time, many *Gouttes de lait* have been founded following this model, so that by 1906 there were 222 in the Pas de Calais alone, one among the eighty-six departments of France, and in this department, they have succeeded in reducing infant mortality in the neighborhood of 50 per cent. in the communities where they are located.

Nevertheless, as has been said by Mr. Jonnard, one of our former foreign ministers, at present governor general of Algeria, who wrote the preface of the book of Budin, only three things are necessary for the creation of a *consultation de nourrissons:*

1. A balance (a pair of scales).
2. A milk sterilizing apparatus.
3. The services of a physician.

The first two may be purchased, and the third, it is not necessary to tell you, may be found among my fellow countrymen who have so freely devoted themselves during the past four years to an attempt at safeguarding the liberty of the world.

There really exists one other factor indispensable to the efficient functioning of such an institution, namely, the visiting nurse, which important addition to social service is due to American initiative.

ORGANIZATIONS FOR IMPROVEMENT OF INFANT CARE

The Ligue contre la mortalité infantile[1] has equally encouraged the development or the creation of various organizations tending to promote maternal nursing and the progress of infant hygiene. The first of the *chambres d'allaitement* or "rooms for nursing" were established before the war in some of the larger factories, paricularly in the industrial regions of France at present occupied by the Germans. Since the beginning of the war these *chambres d'allaitement* have been rendered obligatory in the munitions factories and other institutions producing war materials, where women are employed.

In each factory, there are set aside one or more rooms, well aired and kept perfectly clean, with walls painted in white. The workwomen bring their children here in the morning and return at regular intervals of three hours during the day to nurse them. There is also added a room for the sterilization of milk, in case supplementary feeding is necessary. There can also be in addition, a restaurant where the mothers may receive without leaving the establishment a well-cooked and well-planned meal at a low price. For the older children, in such factories, there are installed separate rooms called, "garderies," with rest rooms, playrooms and dining room, where is given the diet appropriate to the child's age, at a price easily within the range of the mother's purse. Further, there are reserved rooms for the isolation of children in case they are ill, thus preventing the propagation of contagion.

In Paris and certain large cities of the provinces, there exist great numbers of charitable organizations directed toward the improvement of the condition of infants; for example, free restaurants for mothers, day nurseries for older children, temporary asylums in the town or country for the care of children during the confinement of their mothers.

Finally, I shall speak somewhat in detail of a very interesting institution called the Pouponnière at Versailles, organized for the benefit of a certain category of mothers in Paris. This institution receives the babies of mothers who because of physiologic or professional reasons cannot nurse their children and cannot afford to hire a wet-nurse. They can send their children, at a price much lower than would be required for a private nurse, to an institution established in the country under the best possible hygienic conditions, where the child is nursed by a woman who at the same time nurses her own child and also cares for another child of from 1 to 2 years of age. The children first entering the institution are submitted to a period of isolation to prevent the entrance of infectious diseases, and for the same reason other children may not visit the Pouponnière, and the mothers only under certain conditions.

The rôle of the visiting nurse will be to coordinate the interrelated actions of these various organizations. This is particularly possible because she comes in contact with the mother in her own home; she can direct her to the different *consultations de nourrissons, gouttes de lait* or dispensaries—then in the great field of "follow-up" work, she can coordinate the work of the societies tending to improve conditions of hygiene and of housing, both for the mother and for the child.

RESULTS OF THE WAR

Since the beginning of the war the problem of the protection of infancy has been much more difficult, and as a result of the war is now particularly urgent. In the first place, great numbers of physicians, those from 25 to 50, or even 55 years of age, have been mobilized. The natural result was a reduction in the number of clinics; this is particularly so because the younger physicians are the most familiar with the modern questions of public hygiene. Further than that, not considering that the war would be of long duration, most of the money formerly given those societies for the reduction of infant mortality was necessarily devoted to the various war requirements.

Finally, it should be noted that the birth rate since the beginning of the war has very markedly fallen, due partly to the great number of young married men who have been killed and a reduction in the number of marriages, and a falling off of the clientele of the dispensaries. There has also been, on the other hand, an increase in child mortality due to the rapid growth of the population of the large cities. This has been caused by the influx of workers to the munition factories, and of refugees, without adequate improvements in housing facilities.

Since 1916, the Ligue contre la mortalité infantile has been forced to crystallize all its efforts to combat this grave danger. This has resulted in the formation of a large number of societies destined to handle this immediate war problem. For example, in Paris, 14,000 liters of milk are distributed daily among the various children's hospitals, *consultations de nourrissons,* day nurseries, asylums for pregnant women, etc. Also, there have been opened in Paris, Lyons and other large cities new asylums for pregnant women, new day nurseries to care for the children of the women in the factories, and, as I have already mentioned, Albert Thomas, minister of munitions, has established in all the munition factories such an organization for the protection of women and children.

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[1] For literature, please write to 49, Rue Miromesnil, Paris VIII^e, or to Dr. Paul Armand-Delille, 44 Avenue du Bois de Boulogne, Paris.

In order to furnish an efficient personnel for the foregoing noted organizations, there has been founded in Paris, under the auspices of the Ligue contre la mortalité infantile, a central school of puericulture. Lectures in puericulture have, however, been given for several years at the Foundation Pierre Budin, Hôpital des Enfants assistés, and in a special department of the Faculty of Paris under Dr. Marfan. I have myself, since 1906, given a course in puericulture in our nurses' training school of the city of Paris, and many others are given in the universities of the provinces.

At the moment, during 1917, when we found ourselves in particular difficulties along these lines in our reorganization of the fight against infant mortality, the American Red Cross arrived in France with its special department, the children's bureau (under the direction of Dr. William Palmer Lucas), to offer its aid. This offer was accepted by the whole of France with the deepest appreciation. That which has so appealed to us from the theoretical standpoint is your development of the visiting nurses, whose efficiency has been so clearly demonstrated in the United States. Of this I am particularly impressed, since I had the opportunity of seeing the visiting nurse organizations of New York, Philadelphia, Cleveland, etc.

After having responded to the most urgent appeals for aid incident to the war, as for example, at Toul, Nesle and Evian, the American Red Cross undertook, at Lyons, a work of a more general nature, in organizing an exposition of puericulture or, as is said here, an "infant welfare exhibit." This has had a most astonishing success. The American Red Cross has been able to group under its standard all of the best elements of the city, including religious, civil and political parties. As has been done by the French people against the Germans, it has made a "Union sacrée" in this great question of the protection of our children.

At the same time, there was inaugurated a course for visiting nurses, for which the number of applicants was soon greater than could be accommodated.

Soon the American Red Cross will transport this exhibit to other large cities of France (Marseilles, Bordeaux, etc.), where there already exist certain children's organizations and where the local committees have cordially offered their cooperation.

The director of public hygiene, M. Brisac, in the Ministry of Interior, is entirely disposed to second these efforts, and as he informed me just before I left on this mission to America, he would himself institute an investigation by his administration, in order to establish not only the list of existant organizations, but also the districts where the need is the most urgent. He assured me that the French government would cooperate with the American Red Cross in the perfection of its organization in the various departments, cities and communities.

We hope that soon, thanks to your aid, first the great cities, then each little village will have its *consultations de nourrissons* with their visiting nurses, so that all French mothers may have the aid and counsel which will permit them to save the generations of the France of the future.

By entering this war, you yourselves have demonstrated that you do not wish that the home of liberty and of the declaration of human rights should be overwhelmed by the waves of barbaric hordes. Instead, it is your evident desire, for which we wish to express our heartfelt gratitude, that after so much sacrifice, France may be reconstructed and its new generations, working with yours, continue their mission for humanity, in defending the right, the justice and the liberty of the world.

THE CHILDREN'S YEAR CAMPAIGN *

GRACE L. MEIGS, M.D.
WASHINGTON, D. C.

The Children's Year campaign in this country is, I believe, part of a great international movement for the protection of children in war time that is stirring all of the warring countries.

In part, this movement is the logical outcome of the years of effort and thought for children that lie between 1900 and the opening of the great war. In these years a realization had grown that of all the people in a country the children are the most important. And so there are many now who feel that in war time it is the children whose interests must be especially protected from the deprivations, dangers and difficulties brought about by the war. One of the ideals in this war for ideals is the determination that children shall not suffer too much for this war, and that the future for which our armies are fighting must bring better conditions for children than did the past.

This movement, however, has had another stimulus, especially in the foreign countries hardest pressed by the war. Every foreign warring country is losing lives for its future in two ways: by losses on the battlefield, and by the losses represented by the inevitable and enormous decline in its birth rate. And every country is realizing that there is just one way to make up at all for these losses, and that is by lowering the death rates for babies and children. The vast and preventable wastage of life represented by the infant mortality rate of a country is really the only point at which a great economy of life is possible, an economy at all in proportion to the loss of life from war.

This has been realized, and in every one of the warring countries, efforts are being made to cut down infant mortality rates and to increase greatly the work for the protection of mothers and babies that had been proved successful before the war. That work includes measures to insure the care of the baby by a healthy mother in her own home, and includes, further, the work of public health nurses or other trained workers, and of centers for maternal and infant welfare. The increase in this work in foreign countries has had to be carried out in the face of great difficulties—the same difficulties we are facing now in this country. The greatest of these has been the shortage of physicians and nurses; the second has been the diversion of popular interest from infant welfare work to other work which has a more dramatic appeal or a more apparent connection with winning the war.

THE WORK ACCOMPLISHED ABROAD

But in spite of these difficulties in the foreign countries, this movement for the protection of mothers and babies has been successful. Infant mortality rates in several of the countries have declined; in many countries more is now being done to care for women and children than ever before.

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* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Reliable figures of infant death rates and birth rates are difficult to secure since the war began. Sir Bernard Mallet,[1] Registrar-General of England and Wales, has gathered together all the material available from official sources. He compares the fall in the number of births in England and Wales, Scotland, Ireland, Germany and Hungary. While the decrease in the number of births has been marked in all of the countries, it has been far less in the United Kingdom than in Germany and Hungary. In England and Wales, Scotland and Ireland in the succeeding quarters and years of the war, the percentage of decrease has varied from about 5 to about 30 per cent., but reached a point over 17 per cent. only in 1917. In Germany (in cities of over 15,000 inhabitants) and in Hungary, on the other hand, the percentage of decrease has been from 23 to 53 per cent., beginning the last quarter of 1914. The maximum point, 53 per cent., shows what an immense loss this represents.

Sir Bernard Mallet then compares the infant mortality rates of England and Wales, Scotland, Ireland and Germany for the years of the war ending in 1916, and shows that in general the rates in these countries have been lower than before the war. He says:

> We have thus the extraordinary phenomenon all but common to these countries that the rate of infant mortality during these years has been lower than at any previous period of like duration. In the three parts of the United Kingdom the rate for 1916 is the lowest recorded, while that for Germany was equaled in 1913 and beaten only in 1912.

Since this article was published, preliminary figures for 1917 for England and Wales have been published and show a rise of 6 points in the infant mortality rate. Newspaper accounts tell us that official figures for Berlin have shown an increase in the infant mortality rates in the last months of 1916 and the first six months of 1917. It is still too early to comment on the meaning of this rise.

It is, indeed, a very striking and remarkable achievement that the countries of the United Kingdom—England and Wales, Scotland and Ireland—should in the second full year of the war attain the lowest infant death rates on record. This result is not due to happy chance. Never before has so much been done for mothers and babies. It is evident from the reports that this work is considered of paramount importance; that while economy must be urged in other directions, none is tolerated in the development of this work. The government in England and Wales gives grants of money through the Local Government Board to local authorities and voluntary agencies carrying on child welfare work. The budget allowance for this grant was £140,000 in 1917-1918, and was increased to £230,000 for 1918-1919.

The number of health visitors—trained women giving instruction to mothers in their own homes on the care of themselves and their babies—was increased from 600 in March, 1914, to 1,445 in February, 1917; that is, it has been more than doubled. The number of centers was increased to 842 in February, 1917, and to more than 1,119 before the end of the year.

Of course, great difficulty has been met in developing the work because of the shortage of nurses. The great importance ascribed to the work has, however, evidently helped to meet this difficulty. It is said:

> The value of this national work is so fully realized that the War Office, in spite of the need of nurses for military service, is not prepared to accept those who are acting as midwives and health visitors.[2]

Last year, England held a national baby week, similar to that carried on in this country in 1916 and 1917. It is said that the popular interest aroused by this campaign helped a great deal in increasing the number of health visitors and infant welfare centers, and in bringing home to the whole country the importance of saving mothers and babies as a war measure.

Perhaps the most important measures of all—those economic measures whose aim is to enable a mother to remain in her own home and care for her baby herself instead of going into industry—I shall not touch on here; nor can I speak of the work that is being carried out to give special preference in the milk and food supplies to mothers, babies and children.

I have sketched this work in England and Wales because it is illustrative of the work that has been going on in many other foreign countries since war was declared.

THE CAMPAIGN IN THIS COUNTRY

The work abroad has been an inspiration for the Children's Year Campaign in this country, which has been planned and is being carried out by the United States Children's Bureau cooperating with the Child Welfare Department of the Woman's Committee of the Council of National Defense. In this campaign the Child Welfare Committee and Committee on Nursing of the General Medical Board of the Council, as well as state and city departments of health, and physicians and nurses all over the country, are cooperating.

This campaign began April 6, the anniversary of the declaration of war, and is to last throughout the second year of the war.

In this country, because of our incomplete vital statistics, we do not know for the whole country the birth rate and infant mortality rate. But we estimate that every year in this country 300,000 children under 5 years of age die. It is safe to say, all agree, that one half of these deaths are preventable. The published aim of the Children's Year Campaign is to save the lives of 100,000 children under 5 during this year, the second of the war.

This aim—the public protection of mothers and young children—is only part of the program of the campaign, which is fivefold. The other four aims are: to maintain the standard of home care and the income on which proper care of children depends; to see that the restrictions on child labor and the requirements of school attendance laws are not broken down under war time pressure; to insure to every child opportunities for the outdoor life and recreation which are essential to health, and to provide for children in need of special care—the dependent, the neglected, the delinquent, the subnormal—the care that they require. I shall have space here to tell only of the first part of the program—the protection of maternity and infancy.

The aim of this part of the campaign is to save 100,000 lives this year. How can it be done? We have thought that to accomplish it two things are necessary:

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[1] Mallet, Bernard: Vital Statistics as Affected by the War, Jour. Roy. Statistical Soc., 1918, **81**, 1.

[2] Hughes, A.: War and the Public Health Nurse, Pub. Health Nurse Quart. 1918, **10**, 210.

First, to enlist the interest and gain the help so far as possible of every one in the country; of fathers and mothers, of physicians and nurses, of health officers—of every one; to develop the general conviction, here as it has been developed abroad, that the protection of children is a war measure.

Second, the development of permanent work for children, especially divisions of child hygiene in state and local departments of health; of centers for infant and maternal welfare, and of the work of public health nurses.

In a democratic country, progress must depend on popular understanding and support. And so in this campaign the Children's Bureau has enlisted the help of the many millions of women represented by the Woman's Committee of the Council of National Defense. In almost every county in this country a committee has now been formed; and under most state and county committees a child welfare committee has been established. These committees have been asked to take up the work of the Children's Year. The Children's Bureau and the Child Welfare Department of the Woman's Committee have asked all local committees to seek the advice of state and local departments of health and of local medical associations in making their plans. To every state, on the basis of its population, has been assigned its quota of children's lives to be saved, and in at least one of the states (Ohio) the state quota has been divided up between the counties and cities. We have heard of one small community whose quota of lives to save was seven, and which intends to save them.

You will wish to know in what ways we are trying to accomplish our two aims—to arouse popular interest and to stimulate the development of permanent work.

THE WEIGHING AND MEASURING TEST

The weighing and measuring test for children under school age is the plan which has been adopted to fix public opinion on the subject of the health of children, and to show the need for better provision for keeping children well—the need of more public health nurses and of more centers for infant and maternal welfare. I may explain the weighing and measuring test briefly as a test in which as many as possible of the children under 6 of a community are weighed and measured, and these measurements compared with a table of average heights and weights at different ages. It is advised that where possible a full physical examination of each child by a physician shall be included. The attention of parents is called to children whose weight falls markedly below the average for their height. The Children's Bureau has furnished a card for recording the height and weight of each child. Half this card is detached and given to the parents to serve as a permanent record; half is returned to the Children's Bureau. The cards where measurements have been made by physicians are to be tabulated. It is hoped that two or three hundred thousand cards will be available for tabulation; this will give data never before obtainable for a table of average heights and weights of children under school age.

The reports of the campaign in many communities are now coming in to the Woman's Committee and the Children's Bureau. They indicate a widespread interest and enthusiasm. Many of the committees are reporting especially the interest shown in the test by the local physicians, and the way in which physicians are cooperating in carrying out the test in spite of the fact that their work is so much increased because of war conditions. The part taken in the campaign by state and local departments of health is a marked feature of the reports.

The weighing and measuring test has not yet sunk sufficiently into the past to let us judge what its end-results for good will be. But as a means of fixing popular attention, as a great publicity and educational campaign, I think most communities agree that it has been a success. The demand for cards for the test has gone far beyond our expectations; 5,000,000 cards have been printed and distributed. A campaign in which 5,000,000 families and many thousands of communities have taken part is one which is talked of and thought about. To most of these families we hope the idea has been brought home that the United States government considers that the special care of children in war time is a patriotic duty.

From New Orleans it is reported that a house-to-house canvass showed that there were about 40,000 children under school age. Of these, 32,730 have been weighed and measured. From Boston it is reported that about 35,000 children have been included in the test.

The test has been criticized because of its crudity. It is said that the height and weight alone are only an extremely rough index of the child's health and nutrition. This is true. It would be far better if every child could have been given a complete physical examination by a physician. But this would have been an impossibility on account of the shortage of physicians.

It is, however, true that the height and weight do give a rough indication of the child's physical condition. Many children who are very markedly underweight for their age and height are being found; there is the evidence of a children's clinic in a large city that the number of cases of rickets and malnutrition had doubled during the last month because of the children brought in by their parents who had discovered their condition through the weighing and measuring test.

THE FINAL AIM

To point out to their parents and to the community the children needing special care is one of the aims of the weighing and measuring test. But the thing which we hope, above all else, to accomplish is the development of permanent work for maternal and infant welfare. After the test, each community—as has been the case in Boston—will, we hope, have seen the need for more centers and more public health nurses, and will feel that the establishment of this work is a war measure. There is evidence that this is happening—that this work is having a great stimulus. We hope by the end of the year that the number of divisions of child hygiene, of infant welfare centers and of public health nurses will be doubled.

Of course, here the campaign comes up squarely against the difficulty that is affecting infant welfare work abroad and that is affecting all public health work in this country. This difficulty is the great shortage of physicians and nurses. The question of the shortage of physicians I shall not take up at all; perhaps it will be spoken of in the discussion. The shortage of those skilled in pediatrics is one of the gravest problems at present in infant welfare work. This shortage makes an increase in the number of public health nurses for preventive infant welfare work all the more an urgent necessity.

The National Organization for Public Health Nursing and the Committee on Nursing of the Council of National Defense are working in close cooperation with the Children's Year Campaign. The first named organization was appealed to by a conference of state child welfare chairmen to devise means of increasing the supply of nurses, and it has approved a plan for cooperating with states in which funds have been raised to employ a state supervisor of nurses either by the state department of health or by the state child welfare committee. The organization will help states to find suitable candidates for these positions, and through a traveling secretary will aid the state supervisor in developing emergency plans for training graduate nurses to do public health and infant welfare work. Already the child welfare committee of one state—Connecticut—has raised funds for this purpose; and others are making plans to do so.

In many of the states and in many cities much work for children as a war measure was being planned or carried on before the opening of the Children's Year Campaign. I wish there were space to tell of the splendid work that has been done. We hope that the general interest aroused by the campaign has aided the work already begun in those states and cities.

All these lines of endeavor in our country and abroad, this whole movement for the conservation of children in war time which we are discussing today, will grow as the years go on. Some day, when the war is over, this movement for the protection of children, like that for the control of venereal diseases, will, I think, be considered among the important lines of progress that have developed from the great war.

This article and those by Drs. L. R. DeBuys and Paul Armand-Delille are part of a symposium on "Child Welfare." The remaining papers, by Drs. J. P. Sedgwick and N. O. Pearce, and by Dr. W. P. Lucas, with the discussion, will appear next week.

Progress in Child Labor Legislation.—The *Child Labor Bulletin* for May has as a special feature the tentative draft of a bill to create a federal Department of Education, to provide for a Secretary of Education and to secure the appropriation of $100,000,000 for federal aid to the states. Drafted by the National Education Association and the National Child Labor Committee in cooperation with educators throughout the country, the measure has for its aims the abolition of illiteracy, the improvement of rural schools, the Americanization of immigrants, and the promotion of physical education in the schools. The *Bulletin* also reviews the gains of child labor legislation during the past year, naming New York, Massachusetts, Wisconsin and Missouri as the banner states for progressive law-making. Within that period, Virginia and Mississippi have raised their educational standards, the former extending her law to apply to the whole state and the latter passing a local option educational bill applying to children between the ages of 7 and 16 years. In addition to the state survey made in Oklahoma by the National Child Labor Committee, three more state surveys are now under way in Michigan, North Carolina and Alabama, for the purpose of studying and reporting on all the conditions affecting child life. The *Bulletin* declares that these surveys have become a part of the campaign of education which accompanies the drafting of children's codes in the various states. The survey in Alabama is especially designed to furnish information for the legislature.

POTENCY OF ANTIMENINGOCOCCIC SERUM

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During the past year there has been much discussion of the therapeutic value of the antimeningococcic serum available in the American market, and of its potency as determined by laboratory tests. While the question of the potency of this agent is still under investigation and is far from being settled, it appears desirable to present this brief review of the situation as it exists at present.

Epidemics of cerebrospinal meningitis occurring in 1915 and 1916, in England and continental Europe, with the mobilization of troops, afforded an opportunity to extend the therapeutic use of antimeningococcic serum, and to analyze the results of treatment with better controls than is usual.

The conclusions reached as to the efficacy of the serum treatment were conflicting. Some workers had most unsatisfactory results, while others working with serum of similar origin were apparently enabled to reduce, to a conspicuous degree, the mortality of the disease.

The failures were in part attributed to the presence in the epidemic of strains of the infecting organisms that were resistant to the serum, or, in other words, that the different serologic responses of the meningococcus were to be considered in serum therapy.

It is pertinent, therefore, to present briefly a few facts in relation to the classification of the organisms isolated from the cerebrospinal fluids of persons suffering from epidemic meningitis.

GROUPS OF MENINGOCOCCI

The first definite separation in groups of the organisms under discussion was made by Dopter, who found that by serologic methods it was possible to differentiate two groups, the true meningococci and a group which he designated parameningococci.

It has been very generally accepted that this separation is valid, but certain workers consider this grouping not sufficiently specific. Further investigation along these lines has led to the recognition by one set of workers of the "irregular" group, which includes organisms that vary from the serologic types which form the basis of the two groups mentioned. Others, working with the cultures secured from cases of meningitis that occurred among troops in England, established four types designated I, II, III and IV, I and III corresponding in general to the regular meningococci and II and IV to the parameningococci.

The group classification of a particular organism is made either by means of agglutination or by means of agglutinin absorption, but the results of the two tests do not necessarily run parallel. The separation of cultures into groups probably is a matter of the greatest importance in connection with the testing of the therapeutic potency of the serum. It should be said that ordinarily there is some "cross immunity" shown by members of the several groups; that is, while a culture falls into a certain group as indicated by reacting with high dilutions of the group type serum, it will react with relatively low dilutions of the antiserum prepared from type strains of other groups.

Unfortunately we are not yet in position to accept finally any grouping that has been proposed, but tentatively, and for the purpose of testing the serum, it seems wise to recognize the largest number of groups which seem to have a reasonably substantial basis.

Some workers, having accepted the classification of four groups, have produced therapeutic serums specific against a single group of the organisms. In view of the delay attending the group classification of the organism that may be cultivated from a case, under ordinary conditions, and the uncertainty as to the validity of such classification, it is questionable whether the use of such narrowly specific serums is desirable. Probably it is better for the present to follow the generally adopted procedure of furnishing a polyvalent serum representative of all recognized groups of the organism.

PROTOCOL 1.—AGGLUTINATION TEST *

Strains	H. L. 98					H. L. 55					H. L. 56					H. L. 57					H. L. 106					H. L. 60				
Dilutions	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800
Serum A	4	4	4	3	2	4	4	4	3	2	4	4	4	3	2	4	4	4	4	2	4	4	3	1	0	4	4	3	2	1
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	4	4	3	1	0	4	3	2	1	0	3	3	2	1	0	4	4	4	2	0	4	4	2	0	0	3	3	2	1	0
D	4	4	4	2	0	4	3	2	2	1	3	3	1	0	0	4	4	4	2	0	4	4	3	2	1	4	4	2	1	0
E	4	4	3	2	0	4	3	2	2	0	4	3	1	0	0	4	4	4	2	0	4	4	3	2	1	4	3	1	0	0
F	4	4	3	1	0	3	3	2	1	0	3	2	1	1	0	4	4	4	2	0	4	4	3	1	0	3	3	2	0	0
1	4	4	4	3	2	4	4	3	3	2	4	4	3	2	0	4	4	4	3	2	4	4	3	2	0	4	4	2	1	0
2	4	4	4	2	0	4	4	3	2	1	4	3	3	2	1	4	4	2	1	0	4	3	2	1	0	4	4	2	1	0
3	4	4	4	3	2	4	4	4	3	2	4	4	4	3	3	4	4	4	3	2	4	4	4	2	1	4	4	4	3	2

* In the protocols:

4 = complete agglutination with sedimentation and clear supernatant fluid.
3 = strong agglutination with sedimentation and faint clouding of the supernatant fluid.
2 = partial agglutination with slight sedimentation and cloudy supernatant fluid.
1 = slight agglutination with occasional flocculent clumps suspended or precipitated.
0 = no agglutination with homogeneous cloudy supernatant fluid and no flocculent precipitation.
Strong agglutination is credited as satisfactory.
4 = complete fixation or no hemolysis.
3 = strong fixation or a faint tinge to the supernatant fluid.
2 = definite fixation or slight hemolysis with a precipitate of blood cells.
1 = slight fixation or hemolysis with a slight residue of blood cells.
0 = no fixation or complete hemolysis.
Definite fixation is credited as satisfactory.

Lettered serums A, C, D, E, F represent those of producers not engaged in the interstate sale of this product. Numbered serums 1, 2, 3 represent different lots of the several producers who are engaged in the interstate sale of the product. The letter A uniformly refers to the check serum, the letter B to normal horse serum. The numbers refer to different serums in each protocol.

PROTOCOL 2.—AGGLUTINATION AND COMPLEMENT FIXATION TESTS

Agglutination Test

Strains	H. L. 98					H. L. 55					H. L. 56					H. L. 57					H. L. 106					H. L. 60				
Dilutions	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800
Serum A	4	4	4	3	2	4	4	3	3	2	4	4	3	3	2	4	4	4	3	2	4	4	3	2	1	4	3	3	2	1
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	4	4	4	4	4	4	4	3	4	4	4	4	3	4	4	4	4	4	4	4	4	4	3	4	4	4	4	3

Complement Fixation Test

Groups	I					II					III					IV				
Strains	H. L. 98					H. L. 55 and 56					H. L. 57 and 106					H. L. 60				
Dilutions	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000
Serum A	4	4	3	2	0	4	4	3	3	1	4	4	3	1	0	4	4	3	1	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	4	3	3	4	4	4	3	3	4	4	4	3	1	4	4	4	4	3

METHODS OF TESTING

A number of methods of testing antimeningococcic serum have been employed, but none has won general acceptance. Thus American manufacturers have been accustomed to use the complement fixation method, the agglutination method, the determination of the opsonins or bacteriotropins, or the animal protection test. The English workers have used chiefly the agglutination method, the French prefer the complement fixation method, while according to the latest available literature, the Germans use both the complement fixation test and the determination of the bacteriotropin content of the serum.

Unfortunately there is no satisfactory evidence as to the correlation of the results of any of these methods of testing with the results of the therapeutic application of the serum to the disease in man.

The animal protection test is rather attractive because it seems to produce conditions that are analogous to those under which the serum is used in the treatment of the disease; but our lack of knowledge of the mechanism of infection and protection in man, and of the virulence of cultures for laboratory animals, does not permit the adoption of this test without further study. In other words, it may be quite possible that the protective action of the serum in animals and the curative action in man do not run parallel. Therefore it seemed wise, tentatively, to adopt test tube experiments to determine the activity of the serum used in the United States.

With the application of these serologic tests to the commercial serums, such wide variations in results were found that it seemed clear that the various methods of applying these tests might with profit be replaced by those which would lead to the production of a more uniform preparation. Even with the use of the same test, the readings made by different persons on a given specimen varied considerably. It is scarcely an exaggeration to say that the various reagents used in the tests may be varied in concentration and quantity so as to show almost any result; thus we have a serum sent out for test purposes by a state department of health, which was stated to agglutinate in a dilution of at least 1 : 800 a given culture, but in our hands showed strong agglutination in but 1 : 100 with the same strain (Serum C, Protocol 1). These facts made it necessary to have all serums offered for sale in interstate traffic tested in a central laboratory, and a recommendation to this effect was approved by the proper administrative authorities.

PROTOCOL 3.—AGGLUTINATION AND COMPLEMENT FIXATION TESTS

Agglutination Test

Strains	H. L. 98					H. L. 55					H. L. 56					H. L. 57					H. L. 106					H. L. 60				
Dilutions	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800
Serum A	4	4	4	2	0	4	4	3	2	1	4	4	3	1	0	4	4	4	3	0	4	4	4	1	0	4	4	3	2	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	4	3	3	4	4	4	3	2	4	4	4	3	2	4	4	4	3	2	4	4	4	3	2	4	4	3	3	2
2	4	4	4	3	3	4	4	4	3	3	4	4	4	3	2	4	4	4	4	1	4	4	4	2	1	4	4	4	4	1

Complement Fixation Test

Groups	I					II					III					IV				
Strains	H. L. 98					H. L. 55 and 56					H. L. 57 and 106					H. L. 60				
Dilutions	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000
Serum A	4	4	4	3	1	4	4	4	4	3	4	4	4	3	0	4	4	4	3	2
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	4	3	0	4	4	4	4	3	4	4	4	3	0	4	4	4	4	3
2	4	4	4	3	1	4	4	4	4	4	4	4	4	3	0	4	4	4	4	3

PROTOCOL 4.—LACK OF CORRELATION BETWEEN AGGLUTINATION AND COMPLEMENT FIXATION TESTS

Agglutination Test

Strains	H. L. 98					H. L. 55					H. L. 56					H. L. 57					H. L. 106					H. L. 60				
Dilutions	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800
Serum A	4	4	4	3	2	4	4	3	2	2	4	4	3	3	2	4	4	4	4	3	4	4	3	2	1	4	4	3	3	2
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	3	3	2	4	4	3	3	2	4	4	4	3	2	4	4	4	2	1	4	4	3	2	1	4	3	3	2	1
2	4	4	4	4	3	4	4	3	2	1	4	4	3	3	1	4	4	4	3	1	4	4	3	2	0	4	4	3	2	0

Complement Fixation Test

Groups	I					II					III					IV				
Strains	H. L. 98					H. L. 55 and 56					H. L. 57 and 106					H. L. 60				
Dilutions	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000
Serum A	4	4	3	0	0	4	4	3	2	0	4	3	2	0	0	4	3	2	0	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	3	1	0	0	0	4	3	2	0	0	1	0	0	0	0	4	3	1	0	0
2	4	0	0	0	0	4	3	2	0	0	1	0	0	0	0	4	3	1	0	0

It was determined at the outset that it probably would be wise to accept as suitable for therapeutic purposes any serum which passed satisfactorily either by an agglutination or a complement fixation test. This seemed desirable as certain American and English workers favored the former, believing that it was an index of the value of the serum, while the latter was preferred by other Americans and by French workers.

The choice of the strains for the preparation of antigens to be used in these methods is complicated by the differences of opinion on the grouping of meningococci, as well as by the readiness with which the strains lend themselves to cultivation, and to the above mentioned reactions. After some experimentation it was finally decided that the tests should be made with one or more representative organisms of American origin of each of four groups determined by agglutinin absorption methods. It was found that these embraced representative cultures which would be classified in the three groups: the regular or normal meningococci, the parameningococci, and the irregular organisms.

The antigens for both agglutination and complement fixation tests were prepared essentially by the methods employed by Lieutenant-Colonel Gordon of the English Royal Army Medical Corps, and his associates. These were distributed to commercial manufacturers, together with detailed descriptions of the use of these reagents and the method of reading the results obtained. It was required that the manufacturers should test this serum using these or similarly prepared antigens, but that the serum should not be released until samples had been tested and passed at the Hygienic Laboratory.

All lots of serums have been tested in comparison with one (Serum A in the protocols) which gave moderately high titer, by the above-mentioned methods, and were regarded as satisfactory if they showed an agglutination or complement fixation titer slightly less than, *equal to or greater* than the check serum used (Protocols 2 and 3).

There have been examined since Dec. 1, 1917, 101 lots of serum, representing in each lot from four to more than 100 liters. Of these, twenty-five failed to meet the requirements. Of the twenty-five, nine were produced in the early months of 1917 before the application of the present methods by the Hygienic Laboratory, and six were produced by an institution which does not have a license to engage in interstate traffic, but submitted samples for check testing. Hence, of the lots produced subsequent to this date, 12 per cent. of those submitted by producers offering serum for interstate sale failed to pass.

Comparisons made on eighty or more tests have shown that complement fixation titer usually has a correlation with agglutination titer. However, in individual lots there are distinct deviations from this correlation, as are shown in Protocol 4.

All American serums now on the market are polyvalent serums, and are made by immunizing the horses with from thirty to eighty different strains of meningococci, most of which have been isolated from individuals in this country.

Different lots of serums even from the same manufacturer may vary in titer on different strains of the same and different serologic groups, both in agglutination and complement fixation reactions.

Further, the same lot of serum may show different titers on different antigens made from the same strains, and even on the same antigen. The latter variation is, however, within a comparatively short range.

It has been determined that producers can obtain results comparable with those of the Hygienic Laboratory, when using the methods of testing specified by this institution.

CONCLUSIONS

By the tests, thus far devised, it is possible only to determine definitely that the serum examined is derived from a horse which has been immunized with strains of meningococci representative of the various serologic groups occurring in this country.

All antimeningococcic serums now offered for sale in interstate traffic are required to show this property before release from the plant of the manufacturer.

Feeblemindedness Discussed at National Conference.—At the meeting of the National Conference on Social Work at Kansas City, May 16, George A. Hastings, executive secretary of the Committee on Mental Hygiene of the New York State Charities Aid Association, in discussing the pressing problem of feeblemindedness said that while no census of these defectives had ever been taken in this country, there are probably 400,000 of them, or one for every 250 of the population. In New York State alone there are about 35,000, of whom only about one-sixth are in proper institutions. About 15,000 men have been rejected from the new National Army on account of nervous and mental disorders, and of these, one-third, or about 4,000, were rejected on account of feeblemindedness. The proper place to detect feeblemindedness, he said, is in the schools, and in dealing with the problem, five definite steps are necessary—identification, registration, instruction, supervision and segregation. A practical working program should include an awakened public knowledge and conscience concerning feeblemindedness, a realization of state responsibility and a definite policy, on the part of the state, facilities in the community for the earlier discovery of cases, central registration, the establishment of institutions and schools for segregation and training, facilities in the courts for determining the mental condition of prisoners, establishment of more ungraded classes in public schools, a system of community supervision, and continued scientific study of the whole problem.

RATIONALE OF TREATMENT OF TOXIC AND INFECTION PSYCHOSES *

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The clinical interpretation of toxic and exhaustion psychoses rests, primarily, on psychobiologic principles. Of these principles, the modern physiologic concept that living things are transformers, rather than generators of matter and energy, gives us understanding of the term "mechanism" when applied in conservation of energy, on which concept treatment must be founded. The neural mechanisms with their baffling complexities, their problems of functioning, their clinical interpretations, etc., all require familiarity with the physiology of nervous reactions and afford the most inviting field for the research worker today, especially when in this great world's war, the clinical problems in this special field are overwhelming both in intricacy and in numbers.

We must, in our approach to the understanding of these problems, keep in mind the three essential points of Sherrington,[1] as regards nervous reactions, namely, first, the natural history of cell life; second, the conduction of the nervous impulse more recently studied by Lucas,[2] and third, the integrative nervous reactions, in virtue of which the nervous system unifies functional activities. It is not necessary to dwell on these fundamentals as essentials in the biologic foundation for a psychologic doctrine of the mental life of an individual.

As practitioners, we all recognize the essential value of these principles on which mental mechanisms have their foundation. It is said by Dunlap[3] of Johns Hopkins University that psychologists who have recognized the value of physiology have confined their attention almost exclusively to neurology. This neurology has been of little use to the psychologist, except as a terminologic scheme. The pressing need in psychophysiology is the study of muscle and gland, and only through the study of these tissues in their structural and functional relation to nervous tissue, can neurology be made psychologically valuable. Sherrington,[1] concluding his valuable epoch-marking work, strongly emphasizes the biologic point of view, for the research student, the clinician and all others concerned, in giving explanation of neural mechanisms, as a whole, the purposes of which are dominance and advantage over the environment of the individual. He says:

> The dominance over environment is a necessity and each individual must be adequately adjusted for this purpose.
>
> To a certain extent, this adequacy is a native endowment, transmitted, but with each advancing conflict with evolution of environment, readjustments are necessary. Only by continual modification of its ancestral powers to suit the present, can it fulfill that which its destiny, if it is to succeed, requires

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Sherrington, Charles G.: The Integrative Action of the Nervous System, New Haven, Yale University Press, 1911.

[2] Lucas, Keith: The Conduction of the Nervous Impulse, London, 1917.

[3] Dunlap, Knight: An Outline of Psychobiology, Baltimore, Johns Hopkins University Press, 1914.

> from it as its life's *purpose*, namely, the extension if its dominance over its environment.
>
> For this conquest, its cerebrum is its best weapon. It is then around the cerebrum, its physiologic and psychologic attributes, that the main interest of biology must ultimately turn.

Modern biologic thought and research have contributed valuable knowledge to an understanding of these mechanisms, notably the work of Loeb,[4] who implies that the mechanisms of the instincts are reducible to laws which are as valid as the laws of physics; that even the indefinite term, environment, when considered in its individual physical and chemical forces which constitue environment have simple physicochemical laws; that in heredity, with its perplexing problems, we do not need to depend on the assumption of the heredity of acquired characters, but that physiologic chemistry is adequate for this purpose.

Crile,[5] in his kinetic theory, essentially a biologic consideration of man as an adaptive mechanism, proves conclusively that every reaction by which life is manifested in the organism and adaptation to environment secured, is the result of the transformation of energy in the organism.

The special system of organs which transforms potential into kinetic energy for the principal reactions of the body, Crile calls the kinetic system. This system is a part of the great scheme of conservation of energy in the living animal. It works harmoniously under normal conditions with the other recognized systems of the body, namely, digestive (which appropriates energy in the form of food from the environment), the respiratory (through which system oxygen is taken to and carbon dioxid from the blood), the circulatory system (which system transmits matter in the form of food to cells of the body and removes waste), the urinary system (also a remover of waste material), and the genital system (as a procreative system for the purpose of preservation of the species). Each of these systems performs a specific function and, in so doing, transforms potential into kinetic energy within the confines of special needs, but none for special essential adaptive needs.

The essential adaptive needs act, primarily, to transform potential into kinetic energy for the purpose of heat and motion. The principal organs in this system are the brain, the thyroid, the suprarenals, the liver, and the muscles. The functions of these organs, we all know, and also that they are material adjuncts in the processes of all other systems.

Crile postulates that the mechanism which transforms potential energy into kinetic energy to produce muscular action is the brain-muscular apparatus, assisted by the activating and accelerating organs, the thyroid and the suprarenals. Further, that this mechanism which produces muscular action and emotion is the same as the mechanism which generates heat, maintains consciousness, and causes the splitting up of foreign proteins by which the chemical purity of the body is maintained. Crile's theory has not been fully accepted by physiologists, but to the clinician, dealing practically with problems in which these mechanisms are involved, notably in exhaustion states, it offers a rational explanation for the clinical pathology with which we are confronted.

Crile's experience, in endeavoring to have his theory accepted, is not unlike that of Darwin with his theory of the origin of the species, which created such divergent views among biologists. And, as it was said of Darwin, so it may be said of Crile, "whether his views on the modus operandi of his theory receive further confirmation in the future, or whether they are materially modified, in no way affects the truth of the statement that, in employing his activities in adding to natural science, he has revolutionized the world of thought."

Crile's contribution to natural science have given us the most rational explanation of the mechanisms of exhaustion. Cannon,[6] Fraser,[7] Porter,[8] Cowell,[9] Bayliss,[10] Sherrington and others, grasping the opportunity of the greatest war in history, have contributed valuable clinical research studies to these mechanisms, which are leading to, and assisting in, the standardization of the rationale of treatment.

We have all met cases in hospital practice, which in their delineation have passed through the varied stages of exhaustion produced by overstimulation, from the outer and inner environments of the body, and as we have observed their progress either to dissolution or to recovery, we have sought explanation of the mechanisms.

Our own observations and experience justify the acceptance of Crile's[5] kinetic theory which "postulates that there is in the body a kinetic system, consisting mainly of certain organs, which is driven by the stimuli of the outer and inner environment of the body" and that the body is a mechanism integrated and driven by the brain in response to adequate stimuli — contact, distance and chemical — arising within and without the body. Both the phenomena of health and disease are explainable on the basis of this theory.

Under normal conditions, the balance of "wear and tear" is maintained. But, as Weir Mitchell[11] taught us years ago, overfatigue, brought about by excessive activity without adequate balance, will cause exhaustion of a greater or less degree. It is, therefore, the kinetic system driven, as Crile[5] says, "at an overwhelming speed by such activations as severe physical injury, intense emotional excitation, perforation of the intestine, the pointing of an abscess into new territory, the sudden onset of acute infectious disease, such as cholera, an overdose of strychnin, a Marathon race, a grilling fight (such as our soldiers are today encountering), foreign proteins, or anaphylaxis, that there results a condition of acute exhaustion, clinically recognized as shock, and designated, according to its precipitated cause—traumatic shock, psychic shock, toxic shock, infection shock, anaphylactic shock, drug shock, etc. Whatever the cause of the shock, the essential pathology of shock is identical, as is the immediate clinical picture and the subsequent slow, halting recovery of strength and function."

In mental disorders, accompanied by the phenomena of exhaustion, we not infrequently encounter a slow, enervating process such as worry, anxiety, with or without a background of physical disorder, such as nephritis, diabetes, exophthalmic goiter, cardiovascular disorder, and other conditions of essentially chronic type, in which cases a prolonged activation of the kinetic system occurs with resulting slow, but progressive exhaustion. In these cases, we are more apt to find as a complication the toxic-infection psychoses.

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[4] Loeb, Jacques: The Organism as a Whole, New York, 1916.

[5] Crile, George W.: Man as an Adaptive Mechanism, New York, 1916.

[6] Cannon, Walter B.: A Consideration of the Nature of Wound Shock, The Journal A. M. A., March 2, 1918, p. 611; Acidosis in Cases of Shock, Hemorrhage and Gas Infection, The Journal A. M. A., Feb. 23, 1918, p. 531.

[7] Fraser and Cowell: Clinical Study of Blood Pressure in Wound Condition, The Journal A. M. A., Feb. 23, 1918, p. 520.

[8] Porter, W. T.: Boston Med. and Surg. Jour., May 16, 1918.

[9] Cowell, E. M.: The Initiation of Wound Shock, The Journal A. M. A., March 2, 1918, p. 607.

[10] Bayliss, W. M.: Proc. Roy Soc., 1916.

[11] Mitchell, S. Weir: Fat and Blood, Philadelphia, 1911.

The clinical pathology in these cases is essentially the same as in the more acute cases, the difference being in the degree of the time element. The clinical history will show the gradual unbalancing of neural mechanisms where energy transformation is lessened and sooner or later the whole kinetic chain, beginning with the brain and extending to the muscular system, with collateral involvement of the glandular and other systems, until finally all of the mechanisms are out of harmony, inadequate in functioning, with gradual structural changes which ultimately overwhelm and produce dissolution of the individual.

To follow closely the mechanisms of exhaustion, it is necessary, in order to more fully understand what Dunlap said regarding the pressing need of psychobiology, "the study of muscle and gland," that we follow the functioning of the autonomic nervous mechanisms and the associated endocritic glandular activities in the light of modern clinical medicine.

Of creative interest to the clinician is the study of the emotions—their physical basis, their psychology—with their possibilities for good or ill to the individual.

In the realms of clinical psychology as applied to psychiatry, we have the wide field of opportunity to see, study and treat cases, which present in their ensemble the whole gamut of clinical symptoms. Especially marked are the evidences of conflict—the striving for adaptation to, and dominance over, the environment.

Again, let me repeat Sherrington's saying that "dominance over environment is a necessity." This fact really is the basic principle of the new psychiatry so far as psychologic factors are concerned. These conflicts are especially marked at the psychologic level, which are explained by White[12] as follows:

> In general, the difficulties at the psychologic level arise because of inability to deal effectively with reality, and in being forced back from an effective adjustment to reality, the individual is pushed backward to earlier instinctive levels of activity which are more familiar, to regions in which he feels a greater sense of security. Inasmuch as the psychologic integrations are made possible only because of physiologic integrations, which have preceded them in the course of evolution and development, it must happen that, if the push back from reality is very great and long continued, that those lower, bodily types of integrative must often suffer.

The mental conflict is outwardly expressed by disturbances of bodily function. Psychologic conflict is converted into bodily disorder.

The bodily disorder we know may and does not infrequently take on the mechanism of hysteria in the psychoneuroses, while in the psychoses by reason of more or less excessive chronic emotional activation in the conflict, we have definite and demonstrable disorders, involving the autonomic neural mechanisms leading to exhaustion.

In deeply intrenched emotional experiences, occurring in individuals of the neurotic constitution type, with lowered bodily resistance to toxic and infectious disorders, we have decided nutritional, metabolic bodily disorders. Doubtless you all have met, ere this, and will meet more hereafter, the patients suffering from the stress, unrest and anxiety of the war conditions, which cases give marked evidences of failure to find adjustments to circumstance and environment, and in their flight from reality to the safety zone, have mental perturbations within the zone of the psychoses or on the borderline. Each individual reacts according to his own limitations, but whatever the cause of starting the kinetic drive to safety, the mechanism is the same in all cases.

At whatever the level maladjustments occur, we will find characteristic symptoms and a definite clinical pathology. The symptoms which first attract attention may appear at the instinctive level or the social-psychologic level, both of which are evidenced in conduct; then to retreat to chemicopsychologic level as shown in the metabolic disorders, and the end-results in terminal acidosis. Most of our clinical problems arise within the domain of the metabolic changes leading up to the terminal results of exhaustion.

The psychologic factors are well understood and the principles of clinical pathology more or less definite in the toxic infection psychoses; yet the principles of therapeutics are more or less under theoretical discussion in the endeavor of modern medicine to secure stability in its practice.

Theoretical discussions of today are founded on research, experimentation and observation. The divergence between intensive research workers, such as Cannon,[6] Crile[5] and Porter,[8] in the field of shock, which phenomenon is within the scope of the clinical pathology of exhaustion, as seen in the toxic-infection psychoses, is the friendly competition for truth, which we all welcome because it will lead to precision in our therapeutics. These eminent physiologists more or less mechanistic in their conceptions, have contributed valuable knowledge to our understanding of the relationship of physiology to medicine. The great opportunities of the world's war of today has given to these researchers the chance to know what health really means and what disorder really means, when bodily conflicts ensue under extraordinary and very varying conditions of environment.

Haldane[13] says:

> If we look on pathology as simply the description of damage to bodily structure, and the analysis of the causes of this damage, then pathology may be very helpful to preventive medicine, but does not help much in therapeutics. When, however, pathology studies the processes of adaptation to the unusual, defense of the organism against the unusual, and reproduction of the normal, just as the new physiology studies the maintenance of the normal under ordinary conditions, then therapeutics and surgery will be aided at every step by pathology, and a rational biological pharmacology will have its chance.

Modern therapeutics in psychiatry is profiting by the progress in the new physiology and clinical pathology. The disentanglements from old formulas, from the narrow empiricism from fanciful theories, etc., and the substituion of facts from physiology, chemistry, pathology, psychology, physics and allied sciences, has given us scientific therapeutics, with reasonable doctrines, which rational practice sustains in practical results.

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[12] White, W. A.: Principles of Mental Hygiene, New York, 1917.

[13] Haldane, J. S.: Harvey Society Lectures, 1916-1917, p. 40.

In studying the morbid processes encountered in toxic-infection psychoses, with resulting clinical findings in altered functioning, as based on the psychobiologic principles which we have hastily reviewed, we find it necessary to make comprehensive comparisons with conditions as we know them in health. To do this, it is necessary to know as fully as possible from history and observation the apparent normality of the patient. Also the personality, especially the defense reactions which figure in the endeavor to effect a compromise in, or to compensate for, inadequacies to meet life's realities. This matter of defense reactions is the psychogenic factor in many cases of toxic-infection psychoses, which go on to exhaustion and dissolution.

Human motives are strong factors in a large number of such cases and need to be more generally understood by physicians engaged in family practice. The number of cases of toxic-infection psychoses, as a class, are limited in number, yet more such cases are seen in private hospital practice than in our state hospitals. Kirby,[14] in his last report as clinical director of Manhattan State Hospital, gives 1.3 per cent. of the admissions for this large metropolitan district hospital. Our experience in private hospital practice is 10 per cent. This difference may be in classification, but our judgment is that private hospitals, in the natural sequence of events, care for a much greater proportionate number of such cases. The sphere of usefulness of the private hospital is consequently of enhanced value to a community or a locality, because of its more individualized and private care, its convenience of access, and the fact that such cases do not have to be committed in order to be admitted as patients.

The clinical history shows we are dealing with a grave malady. Certain persons, as we know, are more susceptible to exhaustion, shock and mild mental perturbations, such as slight delirium with febrile reactions, while in the more profound toxic and infectious states, more disturbing emotional reactions may develop more serious forms of deliria, including collapse—delirium and psychoses with exhaustion.

We have noticed in preceding remarks that there is no one etiologic factor responsible for the start of the kinetic drive, which eventuates in these terminal results. This fact is in keeping with Bonhaffer's statement made some years ago. This is why careful history, study of the personality and the constitutional make-up of the individual is necessary to determine the particular etiologic factor in each case. The clinical symptoms, physical and mental, are briefly the general appearance of illness, the skin as a rule is dry; nails are brittle; the face, drawn; pupils, dilated; tongue, coated; general nutrition shows loss of weight; the pulse varies according to the degree of emotional excitation; the temperature is usually subnormal; the laboratory findings show mild degree of secondary anemia; the urine, of high degree of specific gravity, and may show the existence of nephritis or diabetes as a complication. The blood pressure likewise is variable, depending on complicating factors; usually in depressive cases, the pressure is higher than the average; in cases with excitement, the pressure is apt to be low. Diastolic pressure is the most significant, both in the progress of the case and in prognosis.

The recent studies of Porter[8] on the war front, as regards *blood pressure in shock*, emphasize the importance of initial fall of arterial diastolic pressure. To determine the fact that circulatory failure has begun without a knowledge of the factor to which it is due, is of little value in the application of remedial measures. The neurologic findings are of importance, and become of greater value as the case progresses. Because of variations in the reflexes, increased or diminished, of large or small excursion as the case may be, it is not unusual to see organic disease diagnosed such as multiple sclerosis; even brain tumor, etc., has appeared in our case histories.

Disorders of perception are characteristic, including all of the special senses. Peripheral analgesia is quite constant and figures conspicuously in the elaboration of the mechanism of the psychosis, accounting for the confusional states, inertia, hallucinations, disorientation, memory defects, defects of judgment and consequent delusional states with marked incoherence. What is true of irritations of the special sense functioning, is likewise true of the motor mechanisms, hence the restlessness, violence not infrequently, and finally volitional inhibitions extending to all muscular activities, including speech. *Sleep disorder is an early* experience, and out of its perturbations grow the modified dream states, the terrors, and finally the somnolence with its mutterings, merging into unconscious terminal states.

The range of clinical types of cases from mild recurrent attacks to profound collapse delirium, afford opportunities for interpretations on the part of the clinician which test his resources both in diagnosis and treatment.

TREATMENT

The general principles of treatment of toxic-infection psychoses have been built up little by little. They involve the broad principles based on clinicotherapeutic observations, leading to certainty as to scientific values; of these, first and foremost is rest, as a conservation of energy indication. This is based on the psychobiologic need for rehabilitation, conservation of functional neural mechanisms. Weir Mitchell,[11] Jackson, Hilton and other pioneers long since called attention to the need of rest rather than exercise in the cases where the experienced clinician interprets the borderline of exhaustion. That the traditions of the past are actively at work today in enforcing exercise on the overfatigued individual are noticed in our experience almost every day. Why is it an intelligent clinician, clear in his interpretations of clinical facts, is not clear concerning therapeutics?

The principles of the rest treatment have not yet reached the profession as a whole. They look on rest treatment as a therapeutic fad and completely overlook its intrinsic values as based on rational clinicobiologic principles. We have for the years of our experience in psychiatry been adherents to the principles and practice of rest in the treatment of mental disorders. Absolute rest is indicated just as in the more definite disorders like broken legs, typhoid fever, cardiac lesions, etc.

The rationale is understood by the physicians in such cases, but in exhaustion psychoses, even as a preventive measure, rest is overlooked or tentatively applied. Motor restlessness, sleep disorder, etc., are improved by rest methods, to which as an invaluable adjuvant, hydrotherapy with continuous bath promotes sleep and lessens motor irritability. Drug medication contributes help, if we keep in mind the fact that we are to harmonize expenditure with real dynamism and not contribute to the toxic overload with which the patient is already struggling. The choice of sedatives is usually hit or miss, the trial and error method, with no thought as to cardiac complications, nephritic, diabetic states, or whether the patient is a vagotonic, with peculiar limitations as to drug therapy. Drug medication is of preponderant value when intelligently used. Especially is it of individual value in complicated cases.

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[14] Kirby, George: Manhattan State Hospital Report, 1917.

The cardiovascular and cardiorenal complications, especially need intelligent oversight as they are the most formidable crises we meet in these cases. Acute cardiac failure with its dynamic mechanisms, reduction of arterial pressure, diminished venous return and reduced cardiac power mark these crises. Wiggers[15] says that the detection of the earliest degree of shock (exhaustion) is extremely important for this purpose; the initial fall of arterial diastolic pressure is to be determined. We have no circulatory sign or criterion by which the incipient state can be detected. But to counteract the mechanisms of cardiovascular crises, the apt suggestions of Wiggers apply, namely: (1) The reduced resistance must be overcome (peripheral); (2) the deficient venous return must be replenished. The drug therapy consists of: (1) vasoconstrictor drugs—epinephrin intramuscularly; (2) intravenous infusions, physiologic sodium chlorid solutions (Bayliss formula), and as suggested by Porter, the breathing of carbon dioxid mixture.

The object of all procedure is to augment venous pressure. Porter[8] says: "The critical level of blood pressure is that point below which blood pressure will not rise again without assistance." An understanding, then, of the critical level is of first importance. If the blood pressure just touches the critical level, a difference of 10 mm. of mercury may be the difference between life and death. A few millimeters above this level, recovery will usually occur spontaneously; a few millimeters below, death will follow unless skilled aid is at hand.

It follows from this vital fact: (1) Procedures which at ordinary blood pressures are not harmful or are but slightly harmful may kill the patient at critical level; (2) remedies that raise the blood pressure but 10 or 15 mm. will save the patient, when rise carries the blood pressure from just below to just above the critical level. The critical level varies with the condition of the nerve cells and other tissues. A blood pressure high enough to maintain a sufficient nutrition in normal bulbar nerve cells is too low to maintain life in cells that already suffer from malnutrition. In that case, a blood pressure raised to a point above the usual critical level will shortly sink again. Hence, the importance of frequent readings of blood pressure until shock (exhaustion) patients are clearly out of danger.

Treatment not based on repeated readings of blood pressure is not intelligent and may be harmful. The diastolic pressure should be employed. The systolic pressure falls more than the diastolic. Conclusions from systolic pressure may err 15 mm. or more. At the critical level, a change of 15 mm. may mean life or death. The error in using the systolic rather than the diastolic pressure may do much harm.

Fraser and Cowell,[7] in study of blood pressure in wound conditions, have contributed valuable knowledge in the use of physiologic sodium chlorid solutions in treatment of shock. They have been disappointed with clinical results obtained, and blood pressure readings confirm these facts in the use of normal salt solution (0.9 per cent. sodium chlorid solution). They have obtained satisfactory results from the hypertonic solution suggested by the Medical Research Committee: sodium chlorid, 2 gm.; potassium chlorid, 0.05 gm.; calcium chlorid, 0.05 gm.; water, 100 c.c. Also the colloidal solution suggested by Bayliss[10] and Cuthbert Wallace: calcium chlorid, 0.075 gm.; sodium chlorid, 1.325 gm.; gum acacia, 2 gm.; water, 100 c.c. Sterilize; if kept in solution for stock solution, resterilize before using. Use from 15 to 20 ounces, or even 30 ounces, intravenously. Give slowly at the rate of 5 ounces in five minutes. Maintain heat at reservoir at 120 F. Give in cephalic or saphenous veins through small glass cannula. Repeat every twelve or twenty-hours.

Blood pressure rises within a few minutes. Injection of the calcium hypertonic gum solution will produce an immediate rise of pressure in cases of hypotension, complicated by toxemia.

Our object in treatment is to meet the cardiac crisis and to tide the patient over this lowered reserve, until blood pressure conditions are improved, the alkali reserve of the blood has been brought up, and cardiac nutritional conditions have improved. Thus, we avert acidosis, which is the terminal clinical exhaustion condition from which death eventuates, unless the heart first fails. Cannon[6] says that "the lower the blood pressure, the lower the alkali reserve, that is, the greater the acidosis."

From clinical evidence, the conclusion is warranted that bodily states characterized by reduced blood pressure and consequently by defective circulation are accompanied by a diminished alkali reserve, and that, as a general rule, the lower the pressure the lower the reserve.

The danger Cannon calls attention to is the precipitous drop in blood pressure, to which Porter alluded, and which our experience confirms. Cannon insists we must keep up the alkali reserve. This has been our practice, and we supply the alkali by warm solution, either intravenously or by continuous proctoclysis, rectal drop method; also, by mouth, sodium bicarbonate, 1 dram, to 8 ounces of sweetened water.

REST METHODS

It is imperative that rest in bed continue indefinitely. The results are to be measured wholly by the nutritive state of the patient. Weight is in most cases the criterion of nutritive rest values, after the dangers of malnutrition have been met. Weir Mitchell[11] emphasized the importance of the physiologic value of adipose tissue. The variation in weight of individuals is well understood, but when it becomes pathologic then it is our duty to meet it and change the loss to one of gain.

Each pound gained is an increment to potential, nutritional values, and points the way toward recovery. This usually means that fat is a wholesome condition and means more and better blood and improvement in color, muscular strength and improved sleep. Mitchell said that the exact relations of fatty tissue to the states of health are not yet understood; but since, on great exertion or prolonged mental or moral strain, or in low fevers, we lose fat rapidly, it may be taken for granted that each individual should possess certain surplus of this readily lost material.

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[15] Wiggers, Carl J.: The Journal A. M. A., Feb. 23, 1918, p. 508.

Feeding in exhaustion is an individual problem to a certain extent. At first, it is a question of tolerance and of overcoming the tendency toward acidosis. Exhaustion, fatigue and toxemia interfere with the progress of digestion, and when this condition has become more or less habitual, then is presented our problem. Here is where fluid becomes a necessity and, as Stiles[16] says, "Water is the largest item of income of the human body and an essential part of all tissues." Its percentage cannot be lowered without hazard to the body and even to life itself. Water not only adds to the elimination of dissolved tissue waste through the skin and kidneys, but its excess flushes the kidneys, keeps the skin moist, and promotes digestion. The kidneys are greatly hampered by being compelled to excrete a maximum of solids with a minimum of water, which duty they are called on to perform in exhaustion states.

Osler said water is the greatest diuretic. Hawk of Jefferson Medical College has shown by experimentation that the taking of water with meals is wholesome and advantageous in digestion. He has shown that fecal nitrogen is lower when water is taken in large volume, than when it is forbidden. This fact he holds to indicate more complete digestion and more thorough absorption. It is our practice to give water freely and to this end, when indicated, to follow the ingestion by mouth, even by tube if necessary; the use of proctoclysis by the rectal drop method of physiologic sodium chlorid or hypertonic saline solution given at bodily temperature.

We believe we have saved many lives by giving of excess fluids as the one measure which has turned the tide in favor of overcoming the exhaustion state. Stiles says, "Laboratory experiments show that dilution of fresh secretions is at least as likely to increase as to diminish their activity. It must be borne in mind that the dilution of a liquid containing a fixed amount of enzyme does not reduce the quantity of enzyme, but only makes it act in a larger volume in the mixture."

To encourage the taking of fluid, it is our practice to use palatable drinks, even coffee and tea in moderation, and other fluids, all for the purpose of cultivating the habit of taking fluid. Our experience is that the average person, especially women of neurotic constitution, do not take sufficient water. In exhaustion cases, it is the rule that these patients do not volunteer to take fluids in any form. With improved nutritional additions, we find the sleep habit more amenable to return to normal conditions.

Elimination removes the accumulated waste which acts as toxic irritants, to keep the patients awake and to contribute to dream states and confusion growing out of hallucinatory experience, which, in turn, aid in harboring delusions, all of which phenomena disturb sleep. We can aid the return to normal sleep habit by the use of hypnotics, the choice of which must be based on physical indications. The bromids are not hypnotic, but they may reduce psychic and motor irritations, which may be all that is necessary to permit the patient to go to sleep. Their use is limited in defined toxic and exhaustion states. What is needed is a hypnotic which is not a depressant or which may contribute to the overload already present. To this end, paraldehyd renders good service in the more acute cases. It should be given just when needed and in as palatable form as possible.

The synthetic hypnotics are useful, but sulphonal is not safe in exhaustion states. Veronal is by far the safest and, in our experience, the most dependable hypnotic of this group and class. We must caution against the use of scopolamin hydrobromate in exhaustion states. It is dangerous, especially in vagotonic cases, and may contribute to collapse, especially in cases complicated by cardiovascular or cardiorenal conditions.

The continuous bath is in suitable cases of invaluable help and later the tonic baths, to stimulate metabolism. Conservation of energy is our shibboleth throughout the treatment.

Enforced rest methods to be pursued to this end are all of the adjuvants, namely, rest in bed, seclusion, feeding, massage when the time comes for its introduction, and then, with intelligent understanding of the degree as to its use, diversion, psychotherapy to contribute to insight of the patient's own condition—all leading to a rounding out of convalescence. Then, after-care, in ascertaining the patient's limitations, based on clinical findings, as to systemic conditions, namely organic disease in any system, the presence of constitutional disorders, the personal reactions to emotional stimulation, the tendency to worry, to be anxious, etc. In fact, a survey of physical and mental characteristics and tendencies should be made, in order that the patient may be forewarned, and thus forearmed, to meet the emergencies of life and its realities. If a patient can grasp these essentials, a prognosis can be given that a recurrence is not likely to occur and a large percentage of usefulness in life assured.

ABSTRACT OF DISCUSSION

Dr. Theodore Diller, Pittsburgh: There is no essential diagnosis quite so important as the recognition of nervous and mental conditions due to factors which are toxic in character, for the reason that these conditions so well respond to appropriate treatment. It must have been the experience of all of you to have seen profound toxic and exhaustion psychoses make very excellent recoveries. In a practical way, these symptoms vary all the way from a slight tremor through cardiovascular symptoms and up to a profound delirium.

I wish to cite a case which illustrates the great importance of differential diagnosis between toxic exhaustion state and organic disease: A man, 30 years of age, was brought to me by his mother, who stated that for some weeks past he had been quite forgetful. His speech was slurring and suggested paresis. His face looked tired, tremulous and ironed out. Handwriting made in my presence exhibited marked tremor; knee jerks were sluggish; pupils reacted to light quite sluggishly. I made the diagnosis of paresis with considerable confidence and sent him to the hospital for laboratory tests. These showed blood and spinal fluid both negative, globulin normal, and cells 3. I reexamined the man with more pains and discovered that he possessed excellent insight; and I further noted that while the handwriting was bad there were but few errors in spelling. Gradually and then more rapidly, at the hospital, under complete rest treatment, his speech defect disappeared and the handwriting greatly improved. At the end of six weeks the speech was nearly normal and the handwriting hardly exhibited a defect. The diagnosis of paresis was revised and the case recorded as one of exhaustion psychosis—an extreme asthenic state. I suppose such problems of differential diagnosis occur seldom. I can recall only

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[16] Stiles, P. G.: Nutritional Physiology, Philadelphia, 1915.

the physical disorders including the late studies of endocrinic disturbances are not dwelt on here, not because they are unimportant but because an exact mental approach in the therapy of this disease has in the past been so neglected, or has been handled in a haphazard and empiric manner.

The epileptic constitution, or make-up, has long been recognized as the enduring mental stigma of essential epilepsy itself. Only recently have studies disclosed that the main tenets of such a character are present years before the nervous disorder of epilepsy is shown in fits. Indeed, most frequently some part of these defects of personality may be detected in earliest childhood. The chief instinctive defects of the potentially epileptic individual are egocentricity, supersensitiveness and emotional poverty. The potential epileptic is intensively self-centered and fails to project his life interests into his environment in a normal and healthful manner. Partly because of this innate character fault, he is or soon becomes unduly sensitized to all forms of extra stress and annoying demands. He either extroverts his supersensitiveness by exhibitions of rage and tantrums beyond those which may be seen occasionally in passionate children, or, he introverts this feeling and represses the feelings engendered by his environmental conflicts, causing him to develop a very unstable, irritable and sensitive emotional life. This emotional state paves the way for larger and more difficult adaptations which he cannot meet; outspoken fits may then occur. By possessing an egocentric and supersensitive make-up, the potential epileptic fails to make the degree of environmental contact which would lead him into a broad and rich experience with life, hence sooner or later he fails to acquire a well rounded emotional development. This deficit may or may not limit the individual's purely intellectual equipment in later life. Previously endowed with these defective instincts, the increased demands of adolescence and adult life enlarge the difficulties which such individuals are compelled to meet until they reach the breaking point in a fit or seizure. A disintegration of habits and character, known as deterioration, occurs more easily in one thus handicapped by a defective endowment. Therefore, mental or behavior deterioration often precedes actual epileptic seizures for a considerable time. The primary defective endowment plus its easy deterioration accounts for the fact that an essential epileptic from the very nature of his make-up is usually doomed to mental failure, if proper measures to check or controvert his innate faults are not taken at the earliest possible moment. Any effective plan of treatment must essentially take strict and early account of the make-up of epileptics, before all else.

It has been commonly held that even after the first grand mal fit, the epileptic disorder is already a chronic one and only too often defies any and all forms of treatment. This view is true and understandable in the light of what we have just considered. We can only profit by it in the future by steadily educating parents and relatives to recognize the earlier and more benign presence of epileptic reactions such as lethargies, twilight states of petit mal, pathologic absentmindedness, crass rages and tantrums, and the like excessive morbid emotional states. It is now obvious to the careful observer that the fit itself is a reaction away from the excessive stress which may have increased the nervous and mental tension. The unconscious state has different degrees of depth depending largely on the amount of tension previously experienced. Usually it is not the degree of stress per se, but the amount of repression which the epileptic exercises which springs the fit-gun, as it were. From more recent studies we have analyzed the spontaneous productions or mental content of individual petit mal attacks. In these short delirious or automatic episodes occurring with or immediately after these seizures, one may find from the mental content the type of stresses which irritate and baffle the epileptic. These as well as the deeper strivings which may be recovered in the fit furnish data on which we may construct a rational reeducational therapy of the broadest yet specific moment. Time forbids our citing specific or detailed illustrations here. A series of such cases studied in detail are being published elsewhere. Suffice it to say that in the long series of cases studied at Craig Colony and in private practice we have learned more precisely in the mental content what the everyday conscious conflicts of epileptics really are. The basic idea in such studies is to determine the particular kind of defective make-up and its specific conflicts in everyday life. Then we try to induce the epileptic to take a better insight as to his innate faults and his conflicts and thus cause him to see the sequence and consequence of his crude handling of life.

The real therapeutic advantage to the epileptic in this whole procedure is comparable with that obtained by those who suffer from the benign psychoses, who, we know, are very considerably aided in making a more stable recovery from the individual attacks, and further fortifies the individual against possible recurrences of his psychotic episodes. Any one following this therapeutic method should bear in mind that continued epilepsy from its very nature is a deteriorating disorder physically and mentally, and if it be allowed to progress, it steadily lowers the capacity of the individual to make new or difficult adaptations, hence any principle of treatment which is based on a reeducational plan of living, as this method does, is itself liable to be very stressful. If it is done without due care and patience it places extra strain on the epileptic and may thus entail more seizures than before it was begun. Frequently the plan of analysis and reeducation given here must be undertaken for short periods only (days or weeks) and then the patient should be allowed to rest in his newly acquired position until he thoroughly accustoms himself to it, after which advanced work may again be undertaken. If the same mental content repeatedly returns in the automatic delirium in attacks, one must conclude that the special conflict brought out is so basic that no mere analysis will set it free. Then a practical system of training and reeducation must be instituted. Sooner or later one finds that analysis of the mental conflicts but indicates the road for an entire system of reeducation for these epileptics. The individual's susceptibility for this reeducation will give a just estimate of the prognosis in the particular case. It has also been found that coincident with a gradual disappearance of epileptic reactions, as shown in the fits per se, there must be a corresponding increased capacity for work and other spontaneous living interests. Usually these latter clinical evidences of betterment are heralded by a shortening in the reaction time and a lessening of perseveration. The mere cessation of attacks, without corresponding improvement in the psychologic tests, really indicates that the underlying deteriorating disorder has not been as yet favorably modified, and the epileptic attacks may in the course of time be expected to return.

Finally, one may say that a study of the epileptic make-up and the mental content in epileptics, both everyday conscious ones, as well as those shown in the unconscious state, demonstrates (1) the depth of the unconscious regression; (2) the special type of stress which the epileptic has, and (3) the specific type of primary defect in his endowment which must be handled in reeducation. Its therapeutic value in addition to the foregoing is (4) to furnish a specific point of analytic attack by simple explanatory talks, thus increasing the patient's insight into his disease, and (5) to show more definitely the type of special reeducation which should be adopted for each individual patient.

ABSTRACT OF DISCUSSION

Dr. Archibald Church, Chicago: I would like to ask Dr. Clark to give us more concretely the results obtained by the application of these views in the management of epilepsy.

Dr. Meyer Solomon, Chicago: I wish to ask Dr. Clark how he can prove that cases which do not develop real reactions of convulsive type, but which are of the sort he has described under the name of the epileptic constitution are really epilepsies if they do not develop the reaction of the convulsive type. It all depends on how you want to use the term epilepsy. If there are no petit or grand mal attacks, how can you say that the patient has epilepsy? The sort of makeup Dr. Clark has described may be found in the feebleminded, in neurotics, and in many other persons who do not develop epilepsy.

Dr. Joseph Byrne, New York: I became familiar with Dr. Clark's work some time ago and have applied it at my own clinic. The method we formerly employed was the usual routine method, thorough examination in every case followed by operation in suitable cases. In epileptics of various grades we now combine the psychologic and operative methods. In other words, before any attempt at decompression is made, analysis of the personality and an attempt at reconstruction through education are made. Our results have been quite good. Perfect cures are not always to be expected, but the improvement in our patients was such as to convince us of the worth of the method.

Dr. L. Pierce Clark, New York: The method of mental treatment which I briefly outlined in my paper has slowly been built on careful clinical experience and is still being modified and elaborated. It is primarily based on an intensive study of the epileptic as an individual, and the disorder of fits as a more or less necessary corollary of such a potential character makeup when encountering undue stresses. I believe it enhances the former physical and empirical therapy for this disorder at least 50 per cent. It is particularly serviceable in the very earliest cases, but has been found of inestimable value in the care and treatment of the interned cases also. My scheme makes no claim to say exactly what the nature of idiopathic or essential epilepsy really is, but we should seize on those modifiable factors in the epileptic individual and thus improve his social adaptability in its widest sense. To do this most successfully we must detect the epileptic character and habit at the earliest possible moment.

Comparison of Value of Milk with Other Protein Foods.—With bottled milk at 14 cents a quart, 1 cent buys 46 calories (fuel food), including 1/15 ounce of protein (building food). For porterhouse steak at 35 cents a pound, 1 cent buys 30 calories of fuel food, including 1/15 ounce of protein. With eggs at 60 cents a dozen, 1 cent buys 16 calories of fuel food, including 1/30 ounce of protein. At the foregoing prices 1 quart of milk supplies as much food as 10 ounces of porterhouse steak or 8 eggs.—*Weekly Bulletin* New York City Department of Health.

CARBON MONOXID POISONING: ITS NERVOUS AND MENTAL SYMPTOMS

REPORT OF CASE *

CHARLES W. HITCHCOCK, M.D.
DETROIT

McNally[1] makes the somewhat surprising statement that "deaths from carbon monoxid poisoning in large cities now exceed those from any other poison." The total number of gas cases in Cook County, Ill., for 1916 was 501, nearly 8 per cent. of the entire number of coroner's cases. Much of the increase, of course, is a purposeful one, illuminating gas being an easily available means of suicide. Industrial and domestic sources are, however, not a few.

> "The proportion of carbon monoxid differs greatly in domestic and industrial gases, varying between 4 and 30 per cent.—in coal gas, 4 to 10 per cent., and 30 per cent. in water gas, and 20 and 30 per cent. in producer gas—almost all illuminating gas containing a large proportion of water gas. Stoves, salamanders, furnaces, blast furnaces and gas engines are not infrequent sources of this poison. Increased use of gas in the winter months accounts for the large number of deaths at this period of the year. If all gas stoves, plates and heaters were connected by metal instead of rubber, many lives would be saved."

As to the operation of the poison, I quote McNally further: "Carbon monoxid combines chemically with the hemoglobin of the blood to form a stable compound. According to the research of Nicloux, one volume of carbon monoxid acts like 220 volumes of oxygen. The corpuscle is not dead. All it needs is oxygen under sufficient tension to displace the carbon monoxid." In line with this are cases reported by J. Bock.[2]

> Body of man found on floor near defective stove, two thirds hemoglobin of his blood transformed to carbon monoxid hemoglobin. A baby near him showed no signs of poisoning. Body of wife in adjoining room, and only one fifth of her hemoglobin had been so transformed. It is assumed that she was as deeply poisoned as husband, but sought another room where blood threw off the carbon monoxid gas. Bock says: "Evidently the central nervous system becomes irreparably injured from the after-effect of the protracted asphyxia."

With the various tests for carbon monoxid we need not concern ourselves here. My object in presenting this paper is twofold: (*a*) to call special attention to the dangers arising from automobile exhaust gases in closed garages, and (*b*) to note the nervous and mental symptoms attendant on carbon monoxid poisoning. Cases of carbon monoxid poisoning from the inhalation of automobile exhaust gas are, I think, more commonly fatal than otherwise. The files of an Accident Insurance Company, which paid the claim for the death, enable me to report the following case:

Case 1.—S. M., residence, Chicago, employed as a chauffeur of a private car, had entered the garage, a small and closed one, at noon, Nov. 20, 1915, for some work about the machine. About two hours later a maid sent to call him could hear the engine running, but received no response to her summons.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] McNally, W. B.: Carbon Monoxid Poisoning, The Journal A. M. A., Nov. 10, 1917, p. 1586.

[2] Bock, J.: Hospitalstid., Copenhagen, Jan. 2, 1918.

She at once procured a key, unlocked the door, and the body of the man was found in the seat of the auto, dead, the engine still running and doors and windows closed. There were no marks of violence. There was "pinkish red discoloration all over the body, including the face and extremities. The internal organs were found healthy." The coroner's chemist reported on the blood taken from body for examination (3 ounces) as follows: "A chemical examination shows that the blood was 58 per cent. saturated with carbon monoxid. The blood responded to the tannic acid, lead acetate, palladous chlorid tests, and the spectroscopic examination for carbon monoxid hemoglobin."

In January last, Dr. F. W. Nagle of Montreal, president of the Anesthetic Association of America and anesthetist of the Royal Victoria Hospital of Montreal, was found dead in his garage, suffocated by gasoline fumes.

Through the kindness of Dr. R. P. Albaugh of the Division of Industrial Hygiene of the State Department of Health of Ohio, I am able to cite two cases, neither of them directly fatal.

Case 2.—R., man, aged 39, single, American, suffered from a slight case of malaria fifteen years ago. As a gas combustion engineer, he worked constantly for years in a small, poorly ventilated laboratory, over gas jets. About three years ago, he fell from his chair in an unconscious state and remained in this condition for several hours, when he apparently recovered. He continued his work for about two years, during which time he had three or four recurrences of the unconscious state which came on suddenly. In the interim, he has had frequent occurrences of forgetfulness and at times a complete lapse of memory for a few minutes, during which lapse, he would talk incoherently, and after it subsided would take up the thread of his story and continue the conversation. At times, after these attacks, his memory would remain clouded for several hours.

Laboratory analysis of the patient's blood revealed carbon monoxid in large amounts at different times over a period of more than two years. The blood count was: red cells, 5,500,000; white cells, 8,500; polymorphonuclears, 68; small lymphocytes, 4; large lymphocytes, 24; eosinophils, 4.

After going under the observation of a physician, he has suffered from periods of unconsciousness about once a week, periods lasting about five minutes, and also periods of lapse of memory lasting about a half hour, and averaging five or six a week. At present he is undergoing treatment consisting of breathing exercises, graduated walks and daily inhalations of oxygen. Carbon monoxid has been gradually eliminated from the blood since this treatment was begun, which has lasted for a period of about a year.

Case 3.—M., man, aged 30, with negative previous history, went to his private portable garage, on an unusually cold morning, started the motor and returned to the house, where he stayed a few minutes. He went back to the garage to put some oil in the machine and while doing so, smelled something very sweet and had a desire to laugh. He saw yellow flashes before his eyes and felt weak in the knees. His first thought was to sit down on the running board, but decided to go to the house. When just outside of the garage he felt a sudden throbbing of the temples and extreme weakness. His wife found him an hour later lying in the snow apparently asleep. He could be roused, but staggered and could not have walked alone. He was placed in bed and proceeded to sleep as if in a normal manner. He awakened in an hour complaining of dizziness and was unable to walk. He complained of a throbbing headache and talked incoherently. He apparently recovered that day and returned to work the following day. Associates stated that he talked incoherently at different times during the day and was unable to remember dates and other simple facts. He returned home in the evening and remarked that he could not get any sense out of the evening paper, which he had been trying to read. During the night, a severe headache and cough developed with some dyspnea. A physician was called in the morning and found the patient suffering from pneumonia. He developed delirium in a few hours and passed into coma, dying that night.

Still more interesting is the case which I have had the privilege of seeing, and concerning which I entertain a good ultimate prognosis, although recovery is exceedingly slow.

Case 4.—July 13, 1917, I was asked to examine G. W., a man, aged 32, a chemical engineer of college education. His family and personal history were negative. His complaint was of loss of memory, forgetting even things he had just done, names, events, etc. He had been well up to the following occurrence: He says that, Feb. 10, 1917 (month told by him, but day by his wife), he had been to his place of employment and attended to his duties as usual. He came home soon after noon and after luncheon went out to his garage to charge the battery on his car. He thinks he propped the garage door open, but it blew shut, the engine of the car running to charge the batteries. He did not know that the door was shut. Beyond this point, he has no memory of immediate events. About an hour or more later, his wife found him collapsed and unconscious on the garage floor, near the exhaust and the engine running with a very "rich mixture." Medical help was at hand in five or six minutes, the heart was found racing violently and respirations were only five or six per minute. A little later the pulse was only 40. Artificial respiration, strychnin and digitalis were vigorously made use of. He was unconscious until evening, some four or five hours, and then was irrational, drowsy and but partly conscious, for some time. The week following, he was very weak; knew every one of his friends, but would forget that any one of them had been there, if, for instance, he chanced to leave the room. He gradually improved physically and his pulse became normal, about six weeks after the accident.

When I saw him, he was said to be lax in his personal appearance, quite unlike his normal self. He was able to drive his car in quiet and accustomed places, but felt unequal to driving it where any traffic was. He was able to do a little work in his garden, and improvement was noted as to memory, ability, etc., but he could not collect himself sufficiently for laboratory work, and he lacked initiative for any work. His wife thinks him not as friendly in his attitude toward others as was his wont. In appearance, he was well nourished, of dark complexion, his face wearing a rather blank expression. He was inclined to be despondent and doubtful of his gains. His wife (apparently a good observer) notes his improvement from week to week, and that recently he has been able to listen to and follow short stories, which he could not previously do, appreciating their nice points.

The heart was then normal; the pulse, 65, and of good volume, and the respiration, normal. The urine was normal, and the systolic pressure was 110 mm. of mercury. Both the deep and superficial reflexes were quick and active. His pupils were equal and normal, and speech tests brought normal responses. There were no sensory changes and there was no Romberg symptom present. No cause for any memory defect could be discovered other than the occurrence of February 10.

Aug. 6, 1917, his wife reported his further improvement, and that he was then able to read stories himself, that he had promptly answered a business letter without help, aside from being told the date. The day before he was depressed and easily emotional, had cried several times.

Dec. 13, 1917, his wife wrote from Saskatchewan, where he had gone in September to recuperate: "Although my husband is better, he is still unable to resume work. The memory defect is still there, but not as pronounced. Things happening five or ten minutes back seem the hardest to recall. He can remember what has happened during the day now, but does not seem sure. He seems to recall the occurrences of the past eight months, but the first two months after his illness seem almost a blank. The month past is quite clear to him. His eyes seem brighter, but he does not smile often and seems to have a worried look." There was, therefore, a continued anterograde amnesic defect and emotional disturbance. He even once gave a hint of possible suicide, if his recovery was not soon complete, and this naturally led to great care in letting him go out alone. Reminded to answer a letter, he wrote a two page letter, but it took him all one afternoon to do what he would ordinarily have done in ten minutes. He lacks his former ambition and energy, and is decidedly wanting in initiative and, at times, though rarely, is irritable, if urged to do other than as inclined. He was less easily emotional than he had been.

March 16, 1918, there had been comparatively little change. He was much inclined to be depressed and discouraged, and doubt his eventual recovery. He has now gone to a farm, where he can have outdoor life and duties, and, April 22, was reported as anxious to help on the farm in any way he could, becoming more alert and grasping things quickly, but (his wife wrote) "The mind does not retain the impression made. *He still forgets things as soon as they are past.*" She says: "If he received a letter, and then after reading it put in his pocket, he would forget all about it and would ask when it came, and if he had read it. He enters into a conversation now more than he used to, if no strangers are present, but is very quiet before strangers. If that memory defect would only clear up he would be as well as ever. Physically he is in splendid condition, although inclined to go to sleep rather easily."

There is, then, in this case, fourteen months after the accident, an anterograde amnesia still present, some emotional disturbance, and some depression, and these were still well marked, April 16.

The mental manifestations of carbon monoxid poisoning are most interesting. The most constant one referred to in the literature is a memory defect, and this is the chief complaint in my case.

Dr. Mary O'Malley[3] of the Government Hospital for the insane, reported an interesting case with complete recovery.

This patient, a woman, aged 45, native of Ireland, of negative history, was admitted to the hospital thirty-eight days after an accidental inhalation of illuminating gas, an open window having prevented a fatality. Immediately following her trauma, she had been for ten days in a general hospital, and two weeks after it had attempted to resume work, but it was at once noticed that she was dull and foregetful. A week later, it was noted that her movements were awkward, and peculiar, and that her memory seemed a complete blank. She attempted to put the trousers of a little boy on for a waist. She had outbursts of laughter without provocation. She was lost on the streets, became distinctly confused, and then was admitted to the hospital for insane. Here, in the next three days, "Mentally the patient was dull and apathetic: responded promptly to all questions, but was able to give little additional information in regard to personal matters. . . . Replies were irrelevant and accompanied by outbursts of laughter. . . . She had a mistaken identity of all persons in her environment. . . . There was a retardation and some incoordination in all her movements. Asked where she was, she said she was at home." In the next ten days she showed a tendency to confabulate, showed uncontrollable laughter, and had incontinence of urine and feces.

She then showed gradual improvement, and a mental examination about three months after her accident showed that she had recovered her mental faculties, but there was an anterograde amnesia covering a period of three months. Two months later she was discharged recovered.

Le Dosseur[4] "has collected a number of cases in which the following mental disturbances were noted: aphasia, acute delirium, transitory chronic delirium, mental confusion, amnesia, melancholia, dementia. On the physical side he found muscular paralysis of diverse types, hemiplegias, paraplegias and monoplegias, various trophic disorders, convulsions, etc."

Dr. P. C. Knapp[5] cites a case of retro-anterograde amnesia following a gas poisoning, which occurred May 10, 1910, the patient having been some hours unconscious.

She was then 43, had married at 25, and had led a happy domestic life. Her amnesia blotted out previously acquired memories, and there seemed to be an inability for new memories. She forgot the doctor continually, insisted that she had never seen him before, etc., although she might have seen him but a very short time previously. She did not know where she now lived, nor by whom her husband was employed. She later improved somewhat, but Oct. 3, 1915, more than five years after her accident, her memory was still defective.

"*The amnesia may simulate the Korsakoff syndrome* in the polyneuritic psychosis with confabulation, pseudo-reminiscences, etc. A defective memory may exist in a certain number of patients who recover. This amnesia is retrograde or anterograde in type: it is variable in course and intensity." In my case, the memory defect was rather of the anterograde type, and complete only for the immediate events attending and immediately following his accident.

Of the amnesia, peculiar to these cases, Sachs has said: "In the early stage of convalescence, a total amnesia is especially typical, either extending over the time before the poisoning, retrograde, or to the things of the present, anterograde." Le Dosseur has cited a case of a physician, who, after an incomplete intoxication, lost his memory totally, recovering only after eighteen months. The aphasia to which some writers have referred as present in some cases, would seem to be an amnesia rather than a true aphasia.

A marked reduction in the field of the emotions has been noted by a number of observers. A masklike expression has been spoken of, and an emotional tone of great indifference. Outbursts of irresistible tendency to laughter, spasmodic in character, have been noted in some cases with an apathetic indifference between the attacks. By the occurrence of thrombotic occlusions and hemorrhages, Mott thinks all of the nervous symptoms are to be explained. It is interesting to note that Mott was the first to notice the marked similarity between the brain of a soldier dead from shell shock, and the brain of a man dead from carbon monoxid poisoning.

There is a lack of observation in these cases continued over a period of years. Various psychoses and psychoneuroses have followed these poisonings but, since many of them have been deliberately suicidal attempts, it is not wise to conclude that any remaining mental aberration is solely due to carbon monoxid poisoning. Memory defect, however, stands out as the most constant and prominent of nervous symptoms due to this toxic agent, and to this Mott in his second lecture on the effects of high explosives as shown in the present war, calls particular attention, demonstrating from photographs the capillary punctate hemorrhages, found in the corpus callosum both in industrial and military cases. Photographs also show cell changes due to carbon monoxid poisoning. The subject, *therefore, has also a side of military interest*, as well as its industrial phases and its too common occurrence in our every day life.

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[3] O'Malley, Mary: Am. Jour. Med. Sc., June, 1913.

[4] Le Dosseur, Louis: Thèse de Paris, 1901, quoted by O'Malley (Note 3).

[5] Knapp, P. C.: Am. Jour. Insan., October, 1915.

ABSTRACT OF DISCUSSION

Dr. Joseph Byrne, New York: I would like to ask Dr. Hitchcock what his experience has been in blood transfusion, bleeding, etc., in these cases?

Dr. G. A. Moleen, Denver: Carbon monoxid poisoning is more common than we are apt to believe. It occurs not only with the gas car, but also with the steamer, as one of the cases which I observed evidences. As to the results, some years ago Spiller and his associate reported a case which showed marked destruction, especially in the striate body, and some destructive lesions in the subcortical area, which probably accounts for some of the phenomena that have been described by Dr. Hitchcock, as well as by other observers. Referring to the blood changes and the combining of the carbon monoxid with hemoglobin, William D. McNally, who was speaking from Nicloux's work, said: "Carbon monoxid combines chemically with the hemoglobin of the blood to form a stable compound." This conclusion has been questioned and I believe disproved first by Haldane and second by Yandell Henderson, who says that carbon monoxid does not form a permanent compound with hemoglobin. In the presence of excess oxygen, or even of pure air, carbon monoxid is rapidly given off and the oxygen carrying power of the hemoglobin is restored. This is a very significant statement.

One case to which I wish to refer was that of a physician who, until September 13 last, was in good health. He went to the garage in which he had a steamer; the pilot light had been left burning over night, and he was found unconscious. He later presented the defects in memory which have usually been described, but the peculiar thing that remains at the present time is the fact that his memory seems to be, as it were, punched out. He can do work up to a certain point and then everything stops abruptly. He will go to the laboratory where he has done a great deal of work, start a urinalysis, get up to a certain point, stop there and walk out in the street, and on returning he has forgotten what he has done. The second case was one of rather severe carbon monoxid poisoning. The man started a car in the garage, having closed the door, to make some repairs. At the present time he has a very pronounced apraxia. In both these cases recovery has not taken place, and I am doubtful whether any case of a fair degree of carbon monoxid poisoning ever recovers fully.

Dr. Charles W. Hitchcock, Detroit: In answer to Dr. Byrne's question, I have not seen any recent cases, so the matter of transfusion has not come up. One point mentioned by me is confirmatory of what Dr. Moleen has said with reference to the mode of operation of the poisoning. I quoted McNally as follows: "The corpuscle is not dead. All it needs is oxygen under sufficient tension to displace the carbon monoxid." One other point was mentioned, namely, that the amnesia may simulate the Korsakow syndrome. That is sometimes the case, and a tendency to confabulate appears. With reference to the organic changes, the memory defect stands out as the most constant and prominent of nervous symptoms due to this toxic agent. Mott in his second lecture on the effects of high explosives, calls particular attention to this, demonstrating from photographs the capillary punctate hemorrhages found in the corpus callosum, both in industrial and military cases. Photographs also show cell changes due to carbon monoxid poisoning. Therefore, the subject has a side of military as well as industrial interest. This type of accidental poisoning is an altogether too common occurrence in our everyday life.

The President on Child Labor During the War.—As the labor situation created by the war develops, I am more interested than ever, if that were possible, in throwing all the safeguards possible around the labor of women and children in order that no intolerable or injurious burden may be placed on them. I am, therefore, very glad indeed that the National Child Labor Committee is diligently continuing its labors and extending its vigilance in this important matter. By doing so it is contributing to efficiency and economy of production, as well as to the preservation of life and health. —Woodrow Wilson.

HEAT STROKE

WITH A SECOND STUDY OF CEREBRAL EDEMA *

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The meteorological conditions responsible for heat stroke are rare in Europe but common in the Mississippi Valley and states of the eastern and southern coasts of this country; in general, heat stroke occurs in river valleys and low lands.[1] Inability of the air about the body to receive any more moisture because it is already so saturated, together with a high temperature of the air, are chiefly responsible for heat stroke, and this applies equally well to heat stroke caused by exposure to the sun's heat and to heat stroke under other conditions, as in hot kitchens or boiler rooms. The "wet-bulb" thermometer determinations so essential to indicate this relation between increased humidity and temperature[2] are unfortunately no longer a part of our daily weather reports.

Less important causes are tight and heavy clothing and a too small intake of water, each preventing or lessening cooling of the surface by evaporation as well as adaptive changes in other heat-regulating activities of the body. Evidence that consumption of alcohol in beverages favors the development of heat stroke and increases the mortality has been advanced by Norton[3] and by Gauss and Meyer.[4] Further evidence regarding this relationship is needed and especially from carefully controlled experiments. There is no evidence that actinic, ultraviolet or other rays except those of heat, play any rôle in the causation of heat stroke from exposure to the sun's rays.[5] Aron[6] found that monkeys accustomed to tropical heat quickly died when exposed to the sun in still air; those in the shade of an umbrella or in the sun with a current of air from an electric fan suffered no damage.

The possibility of an infectious origin for heat stroke is discussed by Sambon.[7] Hedinger,[8] from study of the chromaffin organs of the bodies of two persons dead from insolation, has suggested that a predisposition may exist in their imperfect development.

Some writers[9] discuss the development of a poison as a consequence of the heat and altered metabolism, and liken it to snake venom, probably because hemorrhages in the skin and elsewhere are observed in heat stroke. Woolley[10] has suggested that this poison may be protein and incompletely split from loss of water, concentration of the tissue colloids and changed metabolism, and also that such substances (Vaughan's thermogenic protein poisons) may cause the high fever.

SYMPTOMS

When heat stroke occurs in hot boiler rooms (heat exhaustion) or other similar places, there may be dizziness, nausea and weakness before unconsciousness; the attack may come on slowly; when more severe, profuse sweating, dryness of the mouth, a red or purple discoloration of the skin, shivering, and a subnormal temperature or one of from 100 to 102 F. may precede death in coma.

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* From the Pathological Laboratory of Rush Medical College.

* This investigation was made possible by a grant from the Fenger Memorial Association. A former study of edema of the brain is: Nuzum, Frank, and LeCount, E. R.: The Ability of Brain Tissue to Take Up Water in Delirium Tremens and Other Conditions, The Journal A. M. A., Dec. 16, 1916, pp. 1822-1826.

* Owing to lack of space, this article has been abbreviated by omission of the bibliographic references. These appear in the authors' reprints.

A fibrillary twitching of the muscles, vomiting, slow pulse, a more abrupt onset, earlier coma and high temperature of the body (from 105 to 117) characterize heat stroke from direct exposure to the sun (insolation). In this condition the attack may be indeed a stroke without warning, and has been repeatedly observed in soldiers making a charge in great heat. The simpler classification is asphyxial and hyperpyrexial; Steinhausen[11] refers to comatose, epileptiform and convulsive forms as well as forms without loss of consciousness, an encephalitis variety and a form with delirium.

Edsall[12] describes instances in which generalized fibrillary twitchings and painful cramps of the muscles were the only outstanding features resulting from hot weather and classifies this condition as a separate disorder; some were sequelae.

Wiener[13] and Schmidt[14] among others have accounted for the higher mortality and greater severity of insolation by direct overheating of the scalp and other coverings of the cerebrum. An increase of cells in the cerebrospinal fluid, polymorphonuclear at first and mononuclear later, has been described by Dopter,[15] Huble and Pigache,[16] Dufour[17] and Römer.[18]

PATHOLOGIC ANATOMY

There has been a great deal of discussion[19] regarding the hyperemia of the brain and leptomeninges, partly because the conditions rapidly change postmortem, and observations have been made naturally at varying periods after death; also in part because the observations reported have been of different types of heat stroke and of the brain and its coverings with death at different periods after the stroke or prostration. The minute hemorrhages in the brain and these coverings are, no doubt, as fully responsible for the notice these structures have generally received, as any content-variation from normal of their blood vessels. In places where it usually is observed, cloudy swelling is found in organs of the trunk, with hyperemia; in the lungs, edema. The few gross changes[20] therefore, like the usefulness mathematically of negative values, support any contention of death from heat stroke.

Edema of the leptomeninges with varying amounts of cells in the transudate have led to the view by some[21] that there is a serous meningitis with heat stroke; the suppurative meningitis maintained by Römer[18] is unconfirmed by other observers. In the observations reported by Van Gieson[9] and Steinhausen[11] of microscopic changes in the brain, there is nothing characteristic of heat stroke, and as yet no general agreement regarding the alterations. In this connection changes found in the Nissl bodies by these observers deserve mention.

In postmortem examinations made by one of us of the bodies of thirty-seven persons who died of heat stroke, the following alterations were found quite regularly: edema of the brain or leptomeninges or both; marked generalized passive hyperemia, especially of the brain and lungs; edema of the lungs; hyperplasia of the spleen; cloudy swelling of the liver, kidneys, and myocardium, and petechial hemorrhages of the various mucous membranes and of the skin, with irregular and lessened yellow material of the suprarenal cortices.

Perhaps more interesting than other changes are the edema of the brain tissue and the enlargement of the spleen; many standard textbooks omit entirely mention of any change of the spleen. Norton,[3] in his three cases, mentions the spleen as "normal"; Packard[10] refers to it as "large and soft"; Hiller[10] as "now and then enlarged." Hemorrhages of the skin are common in that of the thorax, especially the sides below the axillae.

In all the thirty-seven, the cerebrospinal fluid was clear, colorless and usually increased. Edema of the brain alone was present in twenty-two; edema of the leptomeninges alone in nine; edema of the brain and leptomeninges in four; a foramen magnum pressure furrow of the brain stem in fourteen, and in three only hyperemia of the brain and leptomeninges. In two of the brains there were minute hemorrhages of the leptomeninges of the cerebrum, and in one barely visible hemorrhages of fresh surfaces made by sectioning the pons. These three had diagnoses of heat prostration. In these brains, after hardening in solution of formaldehyd[22] there was quite generally edema of the brain substance, hyperemia, especially of the white substance, punctiform red places due to hardened blood within minute vessels, and enlargement of the ventricles, especially the lateral; in some cases the lateral ventricles were 14 mm. in the greatest diameter at the anterior commissure, measured on segments made by coronal sections. In one brain, small softenings of the lenticular nuclei were found; the clinical diagnosis was heat stroke, and was well supported by the necropsy observations.

Because of the frequency and the seemingly marked edema of these brains, an attempt was made to learn the amount of water present with more accuracy: At the time of the postmortem examination, pieces were taken from the temporal lobes, one from each, and a separate estimate made for each. They were put separately into weighing bottles, the stoppers "locked" and the bottles and content placed in an icebox until weighed. After weighing, the tissue was removed to a bottle containing redistilled 95 per cent. alcohol equal to two or three times the volume of tissue, and the tissue was then cut into small pieces. The weighing bottles were then weighed empty.

The water content of each specimen was estimated according to the method of Koch and Voegtlin[23] which, briefly, is as follows:

> The tissue transferred to a dried, weighed filter-paper cup is extracted in a Soxhlet apparatus with redistilled 95 per cent. alcohol for from four to six hours, and this followed by extraction with redistilled ether for from two to six hours. It is then ground to a powder in a glass mortar. This powder is digested with 50 c.c. of hot distilled water on a water bath for fifteen minutes. This digestion is repeated four times. The water extracts are evaporated to about 20 c.c. and added to the wet powder with enough redistilled alcohol to make a 75 to 80 per cent. concentration and, after boiling to precipitate the water-soluble proteins, the solids are again transferred back to the filter-paper cup and extracted with redistilled 95 per cent. alcohol for from twelve to eighteen hours. The residue and the cup are dried at 105 C. in an oven to constant weight. All the filtrates and extracts are evaporated together in a weighed beaker and dried to constant weight in a vacuum desiccator. The sum of the two gives the weight of the solids. Subtracting this from the fresh tissue gives the weight of the moisture, from which the percentage is calculated.

It is known that the gray matter of the brain normally contains a higher percentage of moisture than the white,[24] and it has been found in experiments on swelling of the brain substance that the gray and white matters swell differently.[25] The need of studying the hardened brains, as well as technical difficulties of estimating the water of the entire brain, led to taking only similar portions of each brain. The close agreement in water content found in the portions from each side of so many brains indicates a similarity of amount of gray and white matter on each side.

TABLE 1.—PERCENTAGE OF MOISTURE OF BRAINS OF PERSONS KILLED BY ACCIDENT (1917) *

No. of Brain	Clinical Diagnosis	Time in the Hospital	Approximate Hours after Death before Necropsy	Percentage of Moisture
1	Crushing injury and amputation of the left leg; traumatic fracture of the first thoracic vertebra	5 hrs.	22	78.05
2	Crushing injury of the trunk.....	1 hr., 30 min.	15	79.38
3	Fracture of ribs; death in 10 min.	10 min.	18	79.99
4	Gunshot wound of the abdomen	1 hr., 50 min.	16	79.76
5	Gunshot wound of the trunk.....	None	Unknown	80.65
6	Gunshot wound of a lung, the liver and innominate vein	None	Unknown	80.50
7	Gunshot wound of the neck, spine and spinal cord	None	Unknown	79.41
8	Gunshot wound of the trunk.....	None	7	78.56
9	Gunshot wound through the aorta	7 min.	12	80.30
10	Gunshot wound of the chest......	None	23	80.50

* The average of the weights of the pieces of brains from persons killed by accident is 43.425 gm. The average of the percentage of moisture of the two pieces taken from each brain is given.

All of the brains studied were from adults. For comparison, similar portions of brains of adults dead from accidents or crime when death came shortly after violence were examined in a like manner. An average of the percentage of water for these similar portions of control brains is 79.7 per cent. (Table 1). Some of these control estimates were from the brains of persons who had lost a great deal of blood; and with anemia there is edema of the brain. Notwithstanding this factor, the water content found agrees very well with the results given by others for the normal brain,[26] considering also that their estimates are of the brain as a whole. As a dividing line it may be safely said that a percentage of moisture above 80 per cent. may be taken as above normal.

From the average weights of brains of Europeans between 20 and 80 years old, as found by twenty-six investigators working independently, Vierordt[27] gives as the average weight of the brain of a man, 1,357 gm., and of a woman, 1,235 gm. Therefore, 1 per cent. of difference in the water content of brains equals with brains of men about 13.5 gm., with those of women, 12 gm. With a 2 or 3 per cent. increase of moisture content of the brain in disease, if it does not replace other fluid, that is, if there is hyperemia of the brain and meninges and internal hydrocephalus as well, it is very likely that compression occurs, with disturbance of function of first the cortical centers, and then the medullary; 3 per cent. is more than 1 fluidounce, and the brain, unlike most viscera, has a firm wall about it.

The cases of heat stroke of 1916[28] are regularly of high water content (Table 2). Of the sixteen brains estimated, thirteen have a gross diagnosis of marked edema of the brain. Of the latter, nine patients died en route or shortly after admittance to the hospital and their temperature is unknown, except in one, in whose case it was 110 F. One of the remaining seven was in the hospital two and a half days with a maximum temperature of 109 F., the others from one to seven hours and with temperatures of from 110 to 111 F.

Of the heat stroke brains of 1917 (Table 3), for only one was there a high water content, for three a moderate increase, and for the other two the water content was within normal limits, apparently. The heat of 1917 was not as severe as in 1916. With fewer such patients in the wards and, in general, more hours in the hospital for the individual, the treatment may have lessened the moisture content of the brain; perhaps more resistant individuals were affected.

Numerous contributions to and reviews of the subject make it unnecessary to attempt here any direct application of the results of this investigation to what is perhaps inaptly termed "acidosis." The results seem to confirm the impression gained by finding, soon after death and by opening the head first, the brain swollen with flat convolutions and tightly closed sulci, the arachnoid meshwork obliterated, and the parietal and visceral layers of the arachnoid in intimate contact. This condition, always most marked on the vertex and sides of the cerebrum, as already stated is not invariably found with heat stroke; it is perhaps less constant than hyperplasia of the spleen. It does, however, deserve a place with the minute hemorrhages and especially those of the skin, as one of the conspicuous alterations.

TABLE 2.—PERCENTAGE OF MOISTURE OF BRAINS OF PERSONS KILLED BY HEAT STROKE (1916) *

No. of Brain	Clinical Diagnosis	Time in the Hospital	Approximate Hours after Death before Necropsy	Percentage of Moisture
11	Heat stroke..........................	45 min.	15	83.56
12	Sick three days before he was brought to the hospital; examining room diagnosis of typhoid	7 hrs.	17	81.91
13	Heat stroke; acute alcoholism...	11 hrs.	6	82.58
14	Heat stroke..........................	Unknown	Less than 24	81.83
15	Heat exhaustion...................	7 hrs.	17	83.78
16	Heat stroke..........................	1 hr., 15 min.	13	82.85
17	Heat prostration..................	Died on admission	14	81.16
18	Heat stroke..........................	5 hrs., 30 min.	12	81.26
19	Heat prostration..................	2 hrs.	3	81.61
20	Delirium tremens..................	2 days, 16 hrs., 30 min.	24	82.91
21	Fell off a wagon while drunk.....	None	10	81.32
22	Brought in dead....................	None	Unknown	81.32
23	Died in the ambulance on the way to the hospital	None	9	82.63
24	Heat prostration..................	Died on admission	11	82.27
25	Heat exhaustion...................	10 min.	17	83.27
26	Found sitting in a doorway overcome by heat (police record)	None	Unknown	83.42

* The average weight of the pieces of the heat stroke brains of 1916 estimated is 11.281 gm.

There are, however, in medical literature two observations which should be mentioned in connection with these results. One is the experimental production of high temperatures in dogs by Woodyatt[29] by dehydrating the animal by means of continuous injections of glucose. He says:

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[28] During the summer of 1916, according to the Chicago Daily News Almanac and Year Book and the Bulletin of the *Chicago* Department of Health, 535 persons died in Chicago of heat stroke, and this between July 15 and September 16. In 1917, thirty-three persons died of heat stroke all between July 28 and August 25. In reports for 1916 and 1917 of the United States Department of Agriculture, Weather Bureau, Monthly Weather *Review*, the records of both the wet thermometer and the ordinary heat thermometer are highest when the greatest number of heat strokes occurred.

By pushing matters it is possible to produce definite rigors and fever as high as 108 F., but unless the dehydration is carried too far, the chills, fever, shaking and hyperpnea all disappear when the body weight is brought back to the proper level by adding water. . . . The fever can be made to appear and disappear at will by changing the water level, . . . but water need not leave the body. It can be bound with sugar or salt molecules or by protein within the body. The suggestion is that one fundamental factor in the maintenance of a uniform body temperature is the maintenance of a constant water concentration in whatever body fluids function in a way comparable to that of the salt solution phase in the system mentioned.

The other observation,[30] one made by Maud Menten, is an increased hydrogen-ion concentration of the blood with low barometric pressure, that is to say, with heated air or moisture-laden air or both.

PROPHYLAXIS AND TREATMENT

In addition to such usual recommendations as a diet largely of carbohydrates, low in calories, with less of fats and proteins; the use of light, loose clothing and abstinence from alcohol; and to protect the head and avoid extreme muscular exertion in hot and humid air, emphasis should be made of the value of drinking water in the prevention of heat stroke. Hunt[31] states that three gallons of water are required by a man working on a hot day in the sun. Troops marching in the sun on a hot breezeless day will be less likely to suffer from heat stroke if marching in open rather than in close formation.

TABLE 3.—PERCENTAGE OF MOISTURE OF BRAINS OF PERSONS KILLED BY HEAT STROKE (1917) *

No. of Brain	Clinical Diagnosis	Time in the Hospital	Approximate Hours after Death before Necropsy	Percentage of Moisture
27	Heat	11 hrs.	7	81.62
28	Heat	1 hr.	3	80.15
29	Heat tremens	6 days, 15 hrs., 30 min.	6	80.11
30	Heat prostration................	2 hrs., 15 min.	15	79.46
31	Heat prostration................	4 hrs.	12	79.94
32	Heat prostration................	10 hrs.	5	80.37

* The average weight of the pieces of the heat stroke brains of 1917 estimated is 35.061 gm.

When the attack is not severe or in early stages, removal to a cool place may be all the treatment necessary. With collapse and a subnormal temperature, heat externally and massage are advised. With hyperpyrexia, ice and ice-water are used in a variety of ways. A favorite method is to cover the stripped patient on a stretcher with a sheet kept cold by pieces of ice and by pouring ice-water over it. When the thermometer kept in the rectum indicates 103 or 104 F., the patient is removed to bed, wrapped in a blanket, and the temperature watched. Ice-water enemas may be used; also a spray of ice-water on the back. Camphorated oil and other cardiac stimulants may be useful. Physiologic sodium chlorid solution subcutaneously was employed by Lewis and Packard,[32] but they were not convinced of its great value. They found that removal of from 10 to 18 ounces of blood from patients after the temperature was reduced was often followed by improvement.

Woolley[33] advises solutions of sodium chlorid and carbonate in water rectally and intravenously. In those cases in which the symptoms have continued for days with coma, spinal puncture has been done with good results.

Military Medicine and Surgery

VISUAL REQUIREMENTS OF THE UNITED STATES NAVY *

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The visual requirements of the Navy may in general be said to be more severe than those of the Army. At the same time they are simpler and more definite, both because of the much narrower latitude allowed for correction by glasses and because they are more categorical, since such requirements readily lend themselves to categorization through a consideration of the various branches and ratings of the service.

Also the visual requirements of the United States Navy may be said to be more severe than those of other countries having large navies, since conditions governing the physisical requirements in the larger foreign navies are necessarily different from our own. In only one, that is in the British navy, does the system of voluntary enlistment prevail. In others, the recruits are subjects of a universal draft system, the sea-faring districts furnishing conscripts so far as needed for the navy, recruits from other districts going to the army.

For a proper appreciation of the visual requirements of the various ratings, it is necessary to have clearly in mind the different branches of the service and the duties involved therein. The enlisted men of the Regular Navy and of the Reserves, for the most part included under the United States Naval Reserve Force, may be classified in three main branches: (1) the seaman branch, which includes those directly responsible for navigating the ship and manning the guns; (2) the artificer branch, such as machinists, electricians, carpenters, plumbers, blacksmiths and firemen, and (3) the special service branch, which includes the yeoman or clerical service, hospital corps, musicians and cooks, also those rated in the radio service and aviation service besides the Marine Corps.

Commissioned officers, both regulars and reserves, are divided into officers of the line or those in charge of matters of navigation, executive command and similar duties and officers of the staff including medical officers, constructors, civil engineers, the pay corps and chaplains.

It is well to recall also the expansive effect on the personnel of the Navy of the present war, significant of which is the fact that any tendency to lower the standard of visual and other physical requirements is naturally to be traced to expanding the forces more rapidly than volunteers measuring up to full standard requirements can be obtained.

The declaration of war, April 6, 1917, found us with a total enlisted strength of 65,000 in the Navy or including the Marine Corps, 82,738. We now have approximately 400,000 officers and men in the various branches of the Navy, all volunteers.

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* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Notwithstanding the fact that the complement of the Navy has been increased to more than four times its original number and that still greater expansion is anticipated in the immediate future, no relaxation in the standard of visual requirements of the Regular Navy has been ordered and at present no such relaxation is contemplated. The same is true of the Reserves except for a certain class of men enlisted for shore duty to be noted later.

The visual requirements of the Regular Navy and Marine Corps may be thus summarized (unless otherwise stated, all vision values are without correction with glasses): Recruits for enlistment in the Navy including the Marine Corps are required to have normal vision, or $^{20}/_{20}$ for each eye, but in candidates who are otherwise physically sound a minimum visual acuteness of $^{15}/_{20}$ will suffice. Color vision must be normal. Various abnormal conditions are given as causes for rejection, such as trachoma, pterygium, strabismus and others which need not be fully enumerated here.

Candidates for admission to the United States Naval Academy are required to have $^{20}/_{20}$ vision in each eye, without the aid of glasses, and the regulation states that there shall be no deviation from this rule.

For the Medical Corps, Dental Corps, civil engineers and for chaplains there must not be less than $^{12}/_{20}$ for each eye, unaided by glasses and capable of correction by glasses to $^{20}/_{20}$. The eyes must be free from disease and color vision normal. For line officers and the pay corps, there must not be less than $^{15}/_{20}$ for each eye, unaided by glasses and capable of correction by glasses to $^{20}/_{20}$. For officers of the Marine Corps, $^{18}/_{20}$ for each eye, unaided by glasses and capable of correction by glasses to $^{20}/_{20}$. Normal color vision is required. The foregoing applies to regular and, in general, to reserve officers.

In the case of officers for promotion, the vision, hearing and other functions must be such as, in the opinion of the board, will enable such officers to perform efficiently their duties at sea.

In the Navy Nurse Corps (female), no specific requirements are observed beyond what is necessary in the opinion of the examining surgeon for proper performance of the work required, the same being subject to approval by the department.

In individual cases, in which the candidate may fall slightly below the standard required by the regulations, and where, in the opinion of the medical recruiting officer, he presents unusual qualifications otherwise, a request for a waiver of the defect may be submitted to the department which will assume the responsibility of the decision in such cases.

In addition to the foregoing, there are certain exceptional requirements for special duties specified, some of which are more liberal, others more rigid than the usual requirements. Under the more liberal requirements, it may be noted that applicants for service in the Naval Reserve Force who would otherwise be ineligible for enlistment may be accepted for special duty in Class 4, for service which involves shore duty only. Here the visual requirement is that which, in the opinion of the examiner, is required in any given case for the applicant properly to perform the duties of the position or rating to which he is to be assigned. Thus it is possible during the emergency to enlist for temporary service large numbers for duty at naval stations, navy yards and elsewhere for shore duty as barbers, cooks, tailors, shoemakers and for similar occupations, in this way releasing a corresponding number of more standard men for sea duty. Except as noted, the visual requirements for Reserves are the same as for Regulars. In the entire seaman branch, the requirements are the same.

Examples of special duties, in which there are more rigid requirements, are those of aviators and gun pointers already enlisted, who must pass special examinations to be eligible for these duties.

The visual requirements for aviators, which are the same as those for aviators in the Army, namely, $^{20}/_{20}$ in each eye, with eyes otherwise normal, need not be further discussed here.

For gun pointers, the visual requirements are more severe than for any other class of duty, and the regulation which has been in force since 1908 requires that the candidate for such rating shall have $^{20}/_{15}$ vision in the right or aiming eye and at least $^{20}/_{20}$ in the other eye. A test of the visual acuity of qualified pointers is made before each target practice and the result entered on the record, a report being also sent to the department.

In this connection, it is interesting to recall some features of an investigation carried out in the winter of 1911, at Guantanamo Bay, Cuba, by E. J. Grow, Medical Inspector, U. S. N., with the view of determining the relation of visual acuity to actual shooting and whether the gun pointers and trainers should be selected with more consideration as to vision than was then required.

To appreciate just what is required in the way of vision in aiming large guns, it may be well to recall that the telescopic sights used include a proper lens system and in addition a glass on which are etched two lines crossing at right angles, one vertical, the other horizontal. Accurate aiming implies that both of these lines be seen in sharp focus by the observer. This will not be possible if there is any considerable degree of astigmatism present in the observing eye. The blurring of one of the cross lines may in such a case be so great that it will appear double. Another source of error, if astigmatism be present, is an ocular parallax between the object aimed at and the cross lines.

Experiments by Grow showed that the presence of an amount of astigmatism under 0.75 diopter could be considered a negligible factor in so far as it concerns accurate perception of the telescopic cross lines and the matter of ocular parallax. The records of the vision tests also showed that $^{20}/_{15}$ vision practically eliminated the chance of any one having over 0.37 diopter of astigmatism, which is to be considered a perfectly safe amount for the purposes here considered.

Myopia was not found in a single instance among the 270 gun pointers examined, as was to be expected, since all myopes would be eliminated by the requirement of $^{20}/_{15}$ vision, as well as by the fact that a myope would be eliminated in any target practice.

With hyperopia, it is entirely different, since a man may have much or little of this error of refraction and still satisfy the $^{20}/_{15}$ visual standard. A marked amount of hyperopia is undesirable in a gun pointer, since in the stress of practice or in actual battle, the vision may become blurred from relaxation of the accommodation. Three men out of the 270 examined were found to have 4 diopters of hyperopia, all three of whom had complained of their eyes being tired and vision blurred during target practice. Grow considers that 3 diopters of hyperopia or more should cause rejection of any one as a gun pointer.

He concludes that a visual acuity of 20/15 will in a simple and practical way eliminate all cases of astigmatism and myopia which by any chance would interfere with the most accurate aim which is possible to be obtained through telescopic sights. "Plenty of men," as he says, "can be obtained who have this vision. Nothing is to be gained by a higher visual requirement."

A comparison of the visual requirements of the navies of all the principal belligerent countries before and since the beginning of the war would be at this time interesting and instructive, but with the exception of France and of some meager data concerning the requirements of the British navy it has not been found practicable in the length of time at disposal to obtain the data required for such a study; this because of the difficulty of foreign correspondence under present conditions. A search of periodical and other literature was disappointing.

Visual requirements for the French navy were revised in the latter part of 1915, when it was announced that owing to appreciable loss in recruiting due to more or less rigid requirements certain reductions would be made in ranks other than pilots, helmsmen, signalers, canoneers, artificers, armed seamen and buglers. In comparing the French prewar and present visual requirements, together with those of the U. S. Navy, the following may be noted. For the sake of clearness, the French standard expressed in fifths is here reduced to its equivalent in the 20/20 standard.

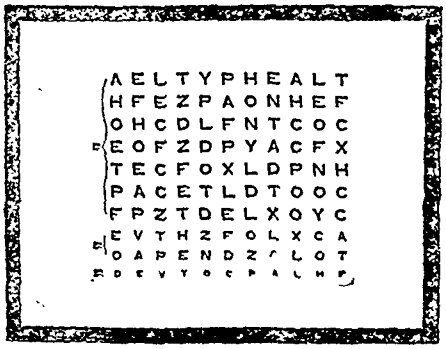

Fig. 1.—Grow "unlearnable" vision test card.

Helmsmen and lookouts: 20/20 in each eye, prewar and present, which is slightly above the U. S. Navy standard of 20/20 with a minimum of 15/20 in exceptional cases.

Pilots above normal: 20/15, prewar and present, which is also above our requirements of 20/20, with a minimum of 15/20 in exceptional cases.

Torpedo men: French prewar standard, 20/20 each eye; present standard, 20/20 in one eye, 8/20 in the other, U. S. Navy, 20/20 with a minimum of 15/20.

Fusileers (corresponding to our marines): prewar, 20/20 in right eye, 12/20 in left; present, 20/20 and 8/20. U. S. Navy, 20/20 in both eyes; exceptionally, 15/20.

Hospital corpsmen: French prewar, 10/20 and 12/20; present 12/20 and 4/20. U. S. Navy, 20/20; minimum, 15/20.

Firemen, carpenters, tailors, sailmakers, buglers and members of the band: French prewar, 12/20 and 8/20; *present*, 12/20 and 4/20. U. S. Navy, 20/20; minimum, 15/20.

Gunners: French prewar, 20/20 and 12/20. U. S. Navy, 20/15 in aiming eye; 20/20 in the other.

The French prewar requirements are *not* at hand for the following ratings, but the present standards may be compared with those of the U. S. Navy as follows:

Apprentice seamen, seamen first and second *class*: *French*, 20/20 and 12/20. U. S. Navy, 20/20; in exceptional cases, 15/20.

Candidates for the Naval Academy: French, 12/20 and 8/20. U. S. Navy, 20/20 in each eye; no deviation.

Medical Corps, civil engineers, pay corps, yeoman school, departmental officers: French, 12/20 and 4/20. U. S. Navy, 12/20 in either eye; correctable to 20/20.

In regard to glasses in the French navy, it is stated that glasses are unacceptable in the service of the fleet.

The visual requirements of the British navy in force before the present war required for men of the deck crew and for naval cadets full normal vision as determined by Snellen's tests. Since the war, candidates have been accepted in the Royal Naval Volunteer Reserve with 20/20 in one eye and 10/20 in the other. Thus the British prewar requirements were practically the same or slightly more severe, if rigidly enforced, than those of the United States, but since the war have been somewhat less rigid for the class of men noted.

Candidates for other branches than the deck crew and naval cadets must not have less than 6/60 (2/20) *in each eye, which must be correctable by glasses to* normal vision. This is considerably below the requirements of the U. S. Navy for men of corresponding ratings.

A question sometimes raised is, To what extent should the wearing of glasses be permitted in naval service? The wearing of glasses by the deck crew of the seaman branch is not practicable, because of fogging of the glasses from sudden temperature changes, fog and spray, and is not routinely permitted. Among men of other ratings, such as *yeomen*, *men in the* pay department, and cooks, there is not the same objection, provided the glasses are worn to avoid the discomfort incident to small or moderate errors of refraction and provided the person would not be incapacitated for duty in an emergency, if deprived of his glasses, for it must be remembered that all men on ship board have their assigned battle quarters regardless of rating, and a person who would be helpless for his assigned duty in case of sudden breaking or loss of glasses during battle would be an undesirable member of the organization. This problem, however, is eliminated as one of practical importance by the visual standard required in recruits, since no one with 20/20 vision, or even 15/20 allowed in exceptional cases, will be entirely dependent on glasses. In individual cases the advisability of allowing glasses to be worn is determined by the medical officer in charge.

The method of taking and recording the vision in the navy differs in some respects from that generally used in examinations for the army and industrial institutions. According to the regulations, "Vision is to be expressed as a fraction, of which the numerator shall be the distance at which Snellen's 20-foot test can be determined and the denominator 20." The candidate, one eye being covered, stands before the card at a distance of 20 feet. If he cannot read the Snellen 20-foot letter at that distance he walks forward until he can just do so, the distance at which he can just read the 20-foot letter being, as before stated, the numerator of the fraction expressing the visual acuity.

In 1910, Medical Inspector E. J. Grow, then instructor in ophthalmology in the U. S. Naval Medical School, published a description of the "unlearnable" vision test card devised by him, which has been since then in universal use in the Navy. Grow was led to devise such a card by the following considerations: (1) There is no one absolute standard observed by publishers of Snellen test type, and the cards of various publishers varied to such an extent that in the case of the line which should be seen at 20 feet ($^{20}/_{20}$) line, there is a variation in the different charts from 7.4 mm. square to 10.6 mm., as a maximum. Such a variation would make a vast difference whether a candidate, slightly defective in vision, was tested by a card constructed according to the latter or former measurement. (2) The remarkable extremes to which candidates would go to enable them to pass the visual requirements, especially when a life occupation was at stake, simply because they lacked by 3 or 4 feet the ability to read the test letters at the required distance, included the memorizing of the various cards in use such that with the large letter at the top as a key letter candidates would be able to call off all the other letters

The card contains a series of test letters which subtend an angle of 5 minutes vertically and horizontally at the nodal point of the eye at 20 feet, thus fulfilling Snellen's principles required by the regulations. For the purpose of recording better vision, as, for example, among gun pointers when $^{20}/_{15}$ vision is required in the sighting eye, an additional line proportionally smaller is added. The card is mounted in a frame which includes a movable cover containing a vertical and a horizontal slit, by changing the position of which various combinations of letters are brought into view. The card can also be conveniently used unmounted, a piece of card board with a slit in the same being held in the examiner's hand serving to cover all lines on the card except the one being used as a test. The use of a single type of card by all medical officers in the service makes for consistency of visual records, and this type of card has proved otherwise eminently satisfactory.

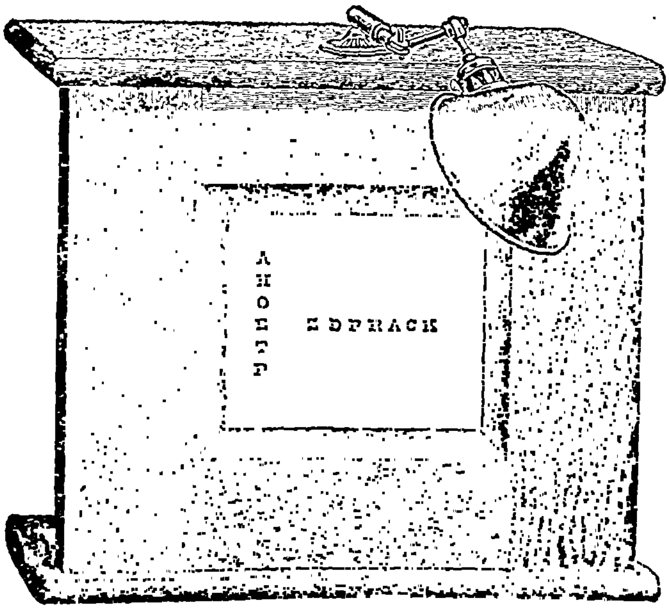

Fig. 2.—Grow "unlearnable" vision test card in cabinet.

In conclusion, it may be said that the visual requirements of the United States Navy are in general more strict than are those of other leading navies.

There have been no changes, since the beginning of the war, in the regulations governing the visual requirements of the U. S. Navy, and none are anticipated as being necessary or advisable at present or in the immediate future. Notwithstanding the considerable increase in the complement of the Regular Navy and in the Naval Reserve Force and the still greater expansion anticipated in the Reserves, there is, at present, no indication of serious danger of lack of the necessary volunteer recruits who may be enlisted under standards now in force.

In this connection, we may quote a recent announcement of the department. The question arose as to whether men who, while no longer potentially fighting men, would still be able to render limited service should be retained in the service or be discharged by survey. The matter was referred to the Bureau of Navigation, which announced its decision: "The Bureau of Navigation does not wish to adopt the policy of retaining men who are physically unfit for duty in the Navy but feels that these men should be given their discharge."

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VISUAL STANDARDS OF THE UNITED STATES ARMY *

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The visual requirements for the soldier of the United States Army were *formerly* normal vision, or $^{20}/_{20}$.

Investigations of Bannister and Shaw tended to show that with a vision of $^{20}/_{40}$ or even $^{20}/_{70}$ a clear enough vision of the bull's eye of a target could be obtained to enable the soldier to shoot with a fair degree of accuracy, and that if one eye possessed $^{20}/_{40}$, this was sufficient. As a result of these investigations the requirements of vision in the Army were changed so as to read:

1. For the line of the Army and for the Signal Corps: $^{20}/_{40}$ for the better eye and $^{20}/_{100}$ for the poorer eye, provided that no organic disease exsits in either eye.

   Recruits may be accepted for the line of the Army when unable *with the better eye to correctly* read all of the letters on the $^{20}/_{40}$ line, provided they are able to read some of the letters on the $^{20}/_{30}$ line.

2. For the Ordnance Department and for the Hospital Corps: $^{20}/_{70}$ in each eye if correctable to $^{20}/_{40}$ with glasses, provided that no organic disease exists in either eye.

The contention was made by Army officers who had made a careful study of the subject that in accurate shooting the bull's eye of the target should be clearly and distinctly seen while the front sight appears slightly blurred in the center of a much blurred rear sight.

To quote from Colonel Havard:[1]

> The ability to correctly estimate distances, under all circumstances, forms an important element in the education of the soldier, and is indispensable to become a good shot. It implies the power, as one changes position, to perceive differences in the clearness, color and shape of topographical features, details of uniform, moving bodies, etc. This is impossible for any one with a $^{20}/_{40}$ vision in the right eye and possibly a poorer one in the left eye. Shooting may be an act of monocular vision, but in all situations where a quick and accurate estimate of distance, speed and direction is necessary, binocular vision is indispensable. . . . Therefore, although it may be necessary at times to enlist applicants with vision below $^{20}/_{20}$ in order to obtain a sufficient number of recruits, the normal binocular vision should remain the standard and be required whenever possible.

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* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Havard, Valery: Manual of Military Hygiene, New York, William Wood & Co., 1909.

In the present great emergency a large number of recruits is needed, and of these a large percentage will not be needed for the firing line, but for the multifarious duties connected with all branches of the military service. Hence the visual requirements have been still further modified by the Selection Service Law of May 18, 1917, and by the Selective Service Regulations prescribed in the Manual of Instruction for Medical Advisory Boards, Feb. 14, 1918. These Regulations for Recruits in the National Army are as follows:

Accept for general military service:

Vision 20/100 in one eye, and 20/40 in the other, without glasses, or 20/100 in each eye, without glasses, if correctable with glasses to 20/40 in either eye.

Accept for special and limited military service:

20/200 in one eye and 20/40 in the other (either right or left) without glasses, or 20/200 in each eye without glasses if correctable with glasses to 20/40 in either eye. Hence a registrant is unconditionally rejected whose vision is below 20/200 in each eye without glasses, or whose vision is not correctable to 20/40 in one eye with glasses; or by inference, who has vision in one eye below 20/200, even if the other has 20/40 or better.

In different branches of the service, different degrees of visual acuity are required:

1. For officers of the Medical Corps and Medical Reserve Corps: Right, 20/100; left, 20/100, corrected to 20/20 in both.
2. For the Ordnance and Hospital Corps: Right, 20/70; left, 20/70, corrected to 20/40 in both.
3. For line and Signal Corps: Right, 20/40; left, 20/100; no correction required.
4. For Army Field Clerks: Right, 20/70; left, 20/70, correctable to 20/40 in each.
5. For Aviation Section, Signal Corps: 20/20 in each eye without correction.

Since the preparation of this paper there has been issued, through the office of the Provost Marshal-General, Form 75, revised regulations concerning "standards of physical examination governing the entrance to all branches of the armies of the United States."

No change has been made in visual requirements from those noted above except in regard to men accepted for special and limited service.

The requirements remain the same as before for this class, but there has been added Section 21 (*b*) which provides that men otherwise mentally and physically fit may be accepted for special and limited military service with "blindness in one eye with normal vision in the other eye without glasses." There is no qualification as to the degree of blindness, and it may be inferred that one eyeball may be absent if the other has normal vision.

The visual requirements in the armies of our allies, especially those of England and France, differ widely from our own, as will be seen by comparison.

VISUAL STANDARDS OF THE BRITISH ARMY

Prior to the War.—With vision in each eye of 20/80 or better without glasses, the recruit was accepted as "fit."

With vision of 20/20 in the right eye *without* glasses, and not less than 20/200 in the left eye without glasses, the recruit was considered "fit."

With vision of 20/20 in the left eye without glasses and not less than 20/200 in the right eye without glasses, the recruit was considered fit for the Signal Corps, Medical Corps, Ordnance Corps and for drivers of artillery and engineers.

War Time Standards.—Since the war began the men have been graded into classes, from Class A, or those fit for general service, through other classes indicating limited service according to the physical qualifications of the men. These various classes have been called categories and designated by A, B, C, D and E.

Men in Category A are wholly fit for any service.

Men in Category B are fit for service abroad at the bases or on the lines of communication, but not fit for general active service.

Men in Category C are fit only for home service.

Men in Category D are temporarily unfit for higher classification, but likely to become fit within six months.

Men in Category E are unfit for further service, and are waiting for discharge.

Attempts are continuously made to fit those men in the lower classes by treatment, training, etc., for places in the higher classes, and the soldier is therefore subject to reclassification at any time into a higher or lower category.

The requirements of vision for Category A, general service, are 20/80 in one eye, and at least sufficient vision in the other to count fingers and to get about. It must be possible, however, to bring the vision of the right eye to 20/40 with glasses, and there must be no organic disease in either eye. All men whose vision is less than 20/40 must be examined by the eye specialist. In Category B I are placed men for garrison service overseas who have vision of 20/40 in the right eye (if myopia does not exceed 7.50 diopters), and any vision at all in the left eye, or even nothing, if there is no active organic disease.

In Category B II, labor battalions overseas, are placed men who are unable to shoot, vision with glasses less than 20/40 or with myopia exceeding 7.50 diopters, whose eyes are free from orgainc disease.

In Category B III, sedentary service overseas, are placed men who have about the same vision as in B II; but these men must be able to use the eyes for near work, such as clerical work.

In Category C I, garrison service at home, are placed men with same vision as those in B I, vision of 20/40 in the right eye and anything or nothing in the left eye.

In these cases there may exist some quiescent corneal or other lesions which might recur and be aggravated by exposure to the irritation of light, heat, sand or dust likely to be encountered in field service abroad.

In C II and C III, labor or sedentary service at home, the visual requirements are the same as in B II and B III, and retention at home depends on the general physical condition of the man.

Generally speaking, no man is placed higher than B II if he has myopia of more than 7.50 diopters, because it is assumed that B I men may be called as supports to the firing line in times of emergency; and if the glasses are lost or broken, these men will be helpless, and might not be able to distinguish friend from enemy.

Squint cases go into Category A if the right eye has the necessary acuity, 20/80 correctable to 20/40. If the left is the useful eye, they are placed in B II.

STANDARDS FOR CANADIAN EXPEDITIONARY FORCE AND ACTIVE MILITIA OF CANADA

Category A for the infantry, artillery and cavalry: Standard I: 20/80 or better in each eye without glasses.

Standard II: 20/80 with right eye and 20/200 with left eye without glasses.

Standard III: 20/80 in one eye without glasses if the right eye can be brought up to 20/40 with glasses.

Category B: Skilled railway employees, army medical corps, ordnance corps, forestry, construction and labor, drivers of artillery or engineers: 20/200 in right eye and not less than 20/80 with the left eye without glasses.

If one eye is amblyopic or blind from traumatic cataract, scar tissue or other local condition, provided this is not due to general constitutional disease, and the other eye has 20/60 or better, the man is placed in Category B I.

VISUAL STANDARDS OF THE FRENCH ARMY

It is said that the standards of the Belgian Army are practically the same as those of the French.

1. For the armed service there is required visual acuity of 20/40 in one eye and 10/200 in the other, and this may be

obtained by the use of lenses correcting myopia, hyperopia or astigmatism.

2. For the auxiliary service are accepted those who have vision in either eye correctable to 20/80, the other being below 10/200 or even completely abolished.

However, men with myopia exceeding 8 diopters, even if the correction of the error of refraction gives them 20/40 or better, are placed in the auxiliary service, provided the myopia is not accompanied by serious choroidal lesions. Men who have lost one eye and who can comfortably wear a prosthesis can be admitted to the auxiliary service if the vision of the other eye can be brought to 20/80 or better with glasses, provided that in the case of myopia it does not exceed 8 diopters.

COMPARISON OF THE VARIOUS STANDARDS

A comparison of these standards shows that so far as visual requirements go, England, Canada, France and Belgium will be able to take into the military service a larger proportion of men of military age than will the United States. Unquestionably, with our present standards modified as they have been in the recent Selective Service Regulations, we are losing for military service many valuable men who, aside from their slight visual defect, are otherwise physically fit.

I wish to call attention to one condition that it seems to me should be recognized in our system of visual standards, especially in these war times. I refer to the condition which, for want of a better term, we call congenital amblyopia of one eye. Any one who has carefully examined many eye cases in the clinic, or for the advisory board, or for the review board at one of the cantonments must have been struck by the frequency of this condition, the degree of amblyopia varying from the ability to recognize forms or to count fingers up to 20/100 or better.

The simplest tests show that the man is not malingering, and a careful ophthalmoscopic examination fails to reveal any deviation from the normal. On inquiry one frequently gets the history that the poor vision of one eye was not discovered until some trifling incident or circumstance prompted him to close the good eye and an examination later by a physician showed the degree of the defect.

Such cases, provided there is no fundus lesion observable, show a practically normal form field and good fields for color, showing that only the central vision is affected. Such persons are seldom annoyed by asthenopia if the fellow eye has fairly good vision and no great refractive error, for they do not have binocular single vision.

Such men, if otherwise physically fit, should certainly be accepted for special or limited military service, if not for general service; many of them are engaged in occupations requiring good sight. We should profit by the English and French standards so far as this class of cases is concerned. It seems to me that our standards for special or limited military service should be changed to read:

"Vision 20/40 in one eye (either right or left) without glasses, and in the other sufficient vision to count fingers, provided examination shows a fairly good form field and there is no evidence of organic disease in the eye;" or 20/200 in each eye, without glasses if correctable with glasses to 20/40 in either eye.

The British standards, as has been shown, would allow such a man to be put into Category A for general service, and it seems to me that ours should do the same if the right eye is the good one.

In regard to the question of standards of vision for officers and enlisted men, they would be greatly simplified if they were the same for officers and men in the various branches of the service. Such is the case at the present time in the line and Signal Corps in which there is demanded right 20/40, left 20/100, with no correction required. Men could be safely admitted to the Ordnance and Hospital Corps with lower vision than 20/70 in each eye corrected to 20/40, and there would seem no good reason why officers in the Medical Corps or Medical Reserve Corps should be required to have their vision in each eye corrected to 20/20 or that they should be rejected if their unaided vision does not come up to 20/100. If this rigid requirement is strictly enforced, many good medical officers will be lost to the service. If the condition is myopia it would be perfectly safe to accept men with 10/200 at least in one eye, and if one is corrected to 20/20 or even 20/30 it is hardly necessary that the other be correctable to the same degree.

CONCLUSION

I would urge that in the present great crisis, the standards of visual requirements for our Army, at least in certain branches of the service, should be made more elastic in order that men may not be lost to the service who, aside from their eyes, are in good condition for it.

THE NEUROPSYCHIATRIC PERSONNEL

THE CHARACTER AND MAKE-UP OF THE MEMBERS OF THE NEUROPSYCHIATRIC DIVISION OF THE MEDICAL RESERVE CORPS *

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There have been thus far detailed to the Neurological Institute of New York City by the Surgeon-General's Department of the Army for intensive study in neurology and psychiatry about 100 officers of the Medical Reserve Corps. At this institution, the course was given by twenty-two specialists, among whom were men of such standing and preeminence as Charles L. Dana, M. Allen Starr, Bernard Sachs, J. Ramsay Hunt and George H. Kirby; and whose interest and fidelity in the work were reflected by the intensity of application and rapidity of progress of the Army medical officers assigned there.

These officers were of many types—physical and intellectual—and of all ages within the Army limits. Indeed, the suspicion that some were over age was, I take it, well founded. Physically the officers of the neuropsychiatric course were, as a whole, well set-up—not particularly of military bearing, excepting a few that had seen military service in the National Guard on the Mexican frontier—but fairly erect in their bearing. Their average height was considerably above the usual, and it took but few of them to fill a conference room. Mentally, they were of all grades. A few, who had seen only institutional life since their graduation from a medical school and who had had in this restricted environment but little contact with the larger world, were at first usually shy and rather ill at ease in the company of others of the class who were more, or shall we say, less fortunate. Of the others,

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

many had been in general practice with neurologic bent and were alert to grasp everything in the nature of novelty in diagnosis or therapy that was offered. There was a third group that had retired from medical practice for one or another reason, for whom the call to Army service was a lure not to be denied. It seemed to resuscitate and rejuvenate them, and they acted like children with a new toy. Some few men had taken out commissions because they were of draft age, and took this means of going into the Army while the going was good. Finally, there was a set composed of real neurologists and psychiatrists who had made intensive study of their specialty and had attained some degree of note and proficiency in their several communities before entering the service. Their number was about twenty-five of the 100. They were able to offer criticism of a constructive kind in the analysis of cases; their interest and intelligent cooperation was a constant stimulus to their less favored companions and their knowledge and past experience with neuropsychiatric cases put the instructors of the course on their mettle and helped to raise the level of the discussions and conferences to a degree never attained in a medical school or ordinary graduate course. Was the subject of debate epilepsy, a pathologist from Craig Colony, a member of the class, could offer from his vast experience facts of the utmost importance; was it pituitary disease, a former assistant of Cushing would regale us; was it shell shock, one of the class, who had been in England with Mott at Maudsly during the past year, had things to say. It was indeed a forum from which he who brought nothing must have been poor indeed. This brings up the thought that such a forum after the war would do more for neurology and psychiatry than a decade of graduate didactic teaching. I know that the writer frequently came from his teaching, learning more than he had taught.

The basic medical education of the class varied roughly with the age of the men. The older they were, the poorer their original equipment. Nothing so impressed us as the evidence of the rapidly increasing standard of medical education in this country, as evinced by the knowledge of the younger men compared with the vague notions of medical science of the older men. This does not mean that the younger men were better—far from it. Their knowledge was more precise; but their dependence on laboratory facts for accurate diagnosis stood in sharp contrast to their older confrères' greater powers of clinical observation.

Among such heterogeneous material, it may well be imagined that difficulties in the arrangement of a course would arise. And they did. But as this is Dr. Weisenburg's province, I shall not dilate on it excepting so far as these difficulties made it rather hard to engage and fix the attention of those to whom the presentations of cases were trite. As a result, there was at first not a community of interest. What appealed to the tyro in nervous diseases did not interest the adept. At first, therefore, the more mature man looked superciliously on his less favored classmate. But gradually, as this latter made rapid progress, he frequently overhauled his vainglorious brother and honors were even. They had then arrived on a plane where there could be a real interchange of views, and the entente cordiale was established. It was interesting to see the constant repetition of this process in successive groups. On completing their course they were universally on the friendliest footing, with the common object of doing their best to make and keep our boys fit for the front.

At the first sessions in the course—most of the men having only recently left private life—there was some laxity in attendance and regularity, and discipline was rather conspicuous by its absence. That is to say, it did not seem heinous to be ten or fifteen minutes late in the morning, or to give a time-worn excuse for an absence. Nor yet did the course of instruction in some awaken more than a mild interest—and that rather in the instructor and his shortcomings than in the course. But very rapidly did these conditions change. As soon as it was understood that the work began promptly on the minute and that the very first minutes of a presentation frequently carried important demonstrations on which a later examination might hinge, the cure was complete and permanent. Of the entire group of 100 men, but two could never be brought to see the reasonableness of this procedure, and they were finally sent to an officers' training camp. This proving too much for the older one, a man well on in years and probably too old for such adjustment, he was allowed to resign from the Army.

In this connection, it might be well to consider some of the personal habits of the men, as shown by daily contact in the conference room or hospital ward. Of the total number, I do not believe more than four were given to alcohol in any marked degree, and only one to so great an extent as to warrant his discharge from the service. As for drug addiction, only one had been mildly affected, so far as we could judge. Three men were markedly negativistic; that is to say, they would react to a statement made by the instructor in the course of a demonstration by an abrupt negation or a stubborn refusal to see what was apparently plain to the others, and the reasons for their attitude were never based on proper foundation. These same men were also noncooperative and did not get along well with their companion officers. They usually went about alone. The rest of the class resented their attitude and occasionally took them to task. But they remained unchanged to the end. One of them had egocentric qualities, in addition, priding himself on his superiority to the others in confidential talks with his instructors. I believe all three were of a potentially psychotic make-up.

Apart from these few men out of the 100, the members of the class were strikingly free of mental taint. After a week or two at the institute, the men would undergo a species of self-measurement—would weigh themselves in the balance, as it were—and then would come to me singly or in small groups, telling me of their shortcomings in their specialty and asking to have a little more time given on this or that particular branch in neuropsychiatry. In this way, the course was gradually molded to suit, as nearly as possible, all their needs.

The chief subjects in which special emphasis and time were desired were the fundamentals—anatomy, physiology and pathology. It was also in these basic studies that the men were largely deficient. If there is one thing on which I should like to lay stress in the teaching of neurology in the future—whether to medical students or to advanced graduates—it is that the physiology of the nervous system must be one of the important basic branches. It should be taught in the laboratory—at a working bench if possible—after the principles of the subject have been inculcated. In no other way can the dynamics of the central nervous system be appreciated. These men, in their process of self-measurement, arrived at this conclusion severally and independently. They felt that without such foundation their outlook was distinctly limited to clinical types—to fixed pictures requiring fixed classifications and fixed therapy, if indeed there were any therapy at all. They felt that they wanted to understand the development history of a case, the nuances and transitions which it underwent. This brings me to their inveterate desire, in the first period of their instruction, that is, the first fortnight, to make a diagnosis. It must be a distinct and clear diagnosis. For borderline cases they had nothing but impatience, for did not the Army regulations require a fixed diagnosis of a clear-cut disease, in order that a man might be rejected (or not) out-of-hand?

At one time there happened to be a case which involved three diagnoses, namely, progressive muscular dystrophy, Friedreich's disease and Marie's ataxie cérébelleuse. Very few of the class were satisfied with a critical discussion in which no sharp line was drawn between these possible diagnoses. And yet it was not possible to draw this sharp line. Then came the inevitable question. How should you classify this case in the Army? The Army surgeon will not accept more than one diagnosis. It was not unlike the question of the lawyer to the expert witness: "Will the plaintiff live a year longer? Answer yes or no." However, during the second fortnight of the course, the men began to lose their dogmatic, stilted attitude and regarded the cases in a broader aspect and from many angles. The neurologists realized that there was a mental side to most pictures, while the psychiatrists recognized that dementia praecox might be confounded with frontal tumor. And so they were gradually led to broader views of their allied subjects. At the same time, a growing respect for one another arose, and a real entente cordiale gradually developed. From this situation, progress went on apace. Each newcomer went through the same process—at first a certain aloofness; then opposition and negativism followed by a stage of silence; a gradually increasing tolerant attitude with partial merging and submerging of old concepts; and a final emergence into the light of breadth of vision. This moulding of character constituted, I believe, the very best phase of the entire course. With almost no exceptions, the men, as they were ordered away to their several stations, expressed their delight with the immense broadening influence that the contact with the instructors and other members of the class had had on them. They had gained something which added to their interest in life, and they looked to the future with new zest and eagerness. They had been lifted out of their past deadly routine.

Of course, even here there were some who were deadly dull—who brought nothing, who gained nothing; who might have remained in the course six days, or six months, or six decades, it mattered not; who never argued and never got impatient; never hurried and never learned; they never slept in lecture and probably will never die. I veritably believe that even the Surgeon-General's Office forgot all about them, for they were rarely called. I certified time and time again to Washington that so-and-so had completed, not his "course," mind you, but his "time," and begged to have him ordered elsewhere. But he stayed and stayed, until through error, his monthly report went to Washington as "excellent." Before the error could be rectified he was suddenly whisked away. I think this error was made only twice—a favorable commentary on the quality of the class.

And as we are now on the subject of reports, a few words on paper-work may not be amiss. Gentlemen, paper-work for an active Army medical man is deadly, and worse, it begets sin. At first, an adjutant for the class was appointed to take over this work. He had had a little experience in the Army before coming to the school. It was decided that each order to every man of the class—according to Army regulations—needed five exact copies: one for the Surgeon-General's Office; one for the Adjutant-General; one for the Military Director of the school; one for Divisional Headquarters, in order to obtain pay, and one for individual filing. A succeeding adjutant who had had even more military experience than the former assured me that three further copies were necessary—making in all eight per order per man. Add to these, the necessary reports, also in triplicate, on each man every month; his duplicate pay vouchers, receipts and acknowledgments in triplicate of quartermaster's supplies, and you have a very respectable mass of filing material. Our adjutant took care of this; and the adjutant was the one man who invariably had a preoccupied look and was apt to be worrisome and irritable. The method makes a poor private secretary of a competent neurologist. It also undermines his health, so that it is necessary frequently to change the incumbent. Washington had, in addition, an annoying way of ordering your adjutant to other fields as soon as he had acquired efficiency, and then your own health suffered.

An interesting episode arose on one such occasion. Our adjutant, a well known neurologist, was ordered to New Mexico from the Neurological Institute. In answer to a request to remain longer, Washington replied: "Impossible to grant request." While en route another telegram followed: "Order to proceed to New Mexico rescinded." It was therefore incumbent on him to return to New York. In desperation, he telegraphed me for instructions. Before I could reply, a fourth telegram from Washington arrived: "Order rescinding order ordering you to New Mexico revoked." This was too much even for a neurologist, and I have not heard from him since. He was tagged out dodging between third base and home plate.

The very best adjutant if the class, as an adjutant, was one who had had much experience on the Mexican border. He was precise, military in carriage and utterance and snapped his replies and requests. But he couldn't spell. The simplest words were phonetically rendered and when corrected, he smiled almost cheerfully, but went right on in his own way. And to make the matter still sadder, he was a good neurologist. The one phobia that possessed the class as a whole was reflected in their faces each morning when telegrams were read. They feared that they might lose their adjutant, and then, whom would the lightning strike next? But even to this brain-racking experience they finally adjusted themselves.

In short, at the termination of each course period, we had a class of men who had profited largely by their experience and their intensive training at the institute. They were well rounded out, their original deficiencies and shortcomings from the clinical as well as from the human and sociologic standpoints were pretty well made up, and they had acquired confidence in themselves and in their ability to do what would be required of them in the Army. From being diffident and uncertain, they had developed initiative, impetus and a spirit of cooperation which was perhaps more important than the actual teaching result.

At the completion of each course, the men could be fairly well divided into two large groups depending on the character of their mental equipment, experience and dynamic power—a group of leaders and organizers constituting roughly 20 per cent., and a group of detail men who had the patience, the receptivity to orders, and the peculiar tacit acceptance of an inferiority, which would not interfere with their equanimity and would not require original thought or initiative from them. This latter group, constituting 80 per cent. of the class, were excellent in their obedience to orders to the last detail, would hand in good reports on cases they examined and would make fairly good diagnoses. They were not brilliant nor original nor forceful. They were reliable. It is curious that these two groups formed spontaneously, as their several characteristics were developed, and the leaders were looked up to by the rest in tacit recognition. It was also never a division based on Army rank. In fact, I have never seen so little importance given to rank as just in these neuropsychiatric classes. But, wherever in the general grouping at the end of a course, a man found himself, he realized that it was his own effort that brought him there, and that his standing was actually determined by his classmates' opinion of his attainments. But all realized the great extent of the improvement that had taken place in them individually.

Each man, at his departure, almost without exception, made it a point to come to the director to thank him for what he termed the most gratifying and profitable experience of his medical life. And from all parts of the country, as well as from abroad, letters are continually received repeating these same statements in connection with the neuropsychiatric work that the men are called on to do. Army experience with its intensive training has been for the majority the greatest event of their lives. They recognize it, and they express their gratitude for it.

In conclusion, it may be said that the grouping of men of the neuropsychiatric division of the Medical Reserve Corps into schools or courses for intensive study is a procedure which amply repays for the six weeks' time devoted to each session, in that it molds of a mass of heterogeneous material with no definite aim, a homogeneous, constructive efficient corps of men, well adapted for the specialized work demanded of them.

ABSTRACT OF DISCUSSION

Dr. Frank P. Norbury, Jacksonville, Ill.: I would like to ask if this course is to continue? In securing candidates for neuropsychiatric work at this time, many are anxious for the training. Two men would like now to take the intensive course mentioned by Dr. Timme. This question is asked of me at least once a week by prospective candidates for service. What is the necessary procedure in order that prospective candidates may be assigned to this training?

Dr. Joseph Byrne, New York: I cannot praise too highly the wonderful analysis Dr. Timme made of these matured students. A point I wish to emphasize that may have escaped attention in the mass of information imparted, is the point stressed in regard to the teaching of neurology based on anatomic and physiologic knowledge. One of the great mistakes that occurred in the development of medical science, although not recognized at the time, was Purkinje's divorce of study of physiology from anatomy. How many of us today can bring the fundamental sciences practically to the bedside for the diagnosis and treatment of disease? In neurology especially the one fundamental thing we have to hold on to is anatomic and physiologic knowledge. In my teaching I always insist on it as well as on neurohistology. In studying neurology we have absolutely nothing to rely on if we get away from the fundamental facts of physiology, and we should thank Dr. Timme especially for emphasizing this important fact in teaching.

Dr. Walter Timme, New York: Regarding the future of the neuropsychiatric course and how long it is to continue, my only answer is measured as all answers ought to be measured in talking of the future—we none of us know. I certainly do not know how long the course will extend. It may depend on the number of applicants for the neuropsychiatric units, or it may depend on whether a large number of those men may immediately be made necessary for army work by the rapid evolution of our troops for duty abroad so that there would not be time to give even six weeks' training.

I have always felt that physiology especially is a subject very much neglected, and when it is taught, as it is so often, according to a didactic method and by a professor in an amphitheater it is a perfect farce meant only for schoolchildren. It certainly does not fit in with the medical education of a mature man.

BASE HOSPITAL AMPUTATIONS IN WAR

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There is little interest in the tabulated report of amputations that I have made for this study, and therefore it is omitted. It has seemed, however, that an analysis of the correlation between the indication and the mortality resulting from a sizable list of these operations might prove profitable. For military reasons I am unable to state the relationship between the number and mortality of these patients and the total of admissions to the hospital with the average total mortality during the same period.

Base hospital amputations may be roughly divided into two classes: first, those that are indicated on the arrival of the wounded from the clearing stations, and second, those required much later. In the first class we may include the early gas infections, fulminating sepsis of large joints and bone injuries, and those wounds which have been passed through clearing stations in rush periods without receiving surgical attention, their primary need being amputation. In the second group might be placed the secondary hemorrhage from extremity injuries, septic limbs with or without gunshot fractures, septic joints, late gangrene from primary vessel injury, and trench foot. In the face of tetanus we do not operate.

War wound sepsis leads many surgeons of experience to change their ideas about their ability to control sepsis and the advisability of amputation. It seems to me that more patients suffer from delayed acceptance of the indication of amputation—thus failing to survive the operation—than other patients are mutilated by early amputation or operation before one would consider the indication rigid in civil work. That point is strongly brought to mind by patients suffering from septic large joints, such as the knee, many of whom might escape with their lives if an early amputation were performed. No one favors mutilating a man by removing a limb, but after some experience in war surgery one may prefer being a party to mutilation in order to see a live patient result. The sepsis of war wounds is so insidious when once under way that the period beyond which no operation will return a live patient may be passed unnoticed.

Hence, a guarded advice: *Make the indication rigid, but amputate early.* Gunshot fractures terminate surprisingly well; one has only to read the evidences of base hospital records to see that. A certain standard of fracture treatment has arisen which protects them; its provisions are excellent; but when a question of amputation arises, the same general admonition concerning a final live patient must be borne in mind. In my experience, secondary hemorrhages are the most dreaded, and combined with septic fractures are the strongest indication for amputation. Gas infection may not be so fatal; early muscle group excision has done much for these patients, as has been reported,[1] and gangrene from vessel injury, trench foot, etc., is always a delayed reason for operating.

The prompt reaction of wounded soldiers from early and indicated amputation is striking.

STATISTICAL SUMMARY

The total number of amputations reviewed was 121, following which there were thirty-five deaths, a mortality equivalent to 29 per cent. The total number of gas infections handled among amputated patients was twenty-seven, with twelve deaths and fifteen recoveries.

Arms and Forearms.—There were twenty-seven arms and forearms amputated with three deaths, a mortality of 11 per cent. Seventeen of these patients had a gunshot fracture, and in all the fatal cases there was gas infection. Gas infection was present as an indication eight times, resulting in five recoveries after amputations. In those who recovered, amputation was performed on an average of three days after injury; the average in the fatal cases was longer between injury and amputation. Sixteen of the twenty-seven patients offered sepsis of the arm or septic fracture as an indication. Gangrene from primary vessel injury was the indication in the other three patients, all of whom recovered.

Legs.—There were twenty-three leg amputations with four deaths, a mortality of 18 per cent. Twelve of these patients sustained gunshot fracture, but only one of them died. Other indications and the results were: sepsis, 12, deaths, 2; secondary hemorrhage, 1, no death; gas infection, 3, with 1 death; gangrene from primary vessel injury, 3, with no death; trench foot, 3, with 1 death after double amputation.

Patients with septic gunshot fractures of the leg were carefully watched and cared for, and consequently amputation was performed early. From the review one might say, however, that septic legs from other gunshots without bone involvement went too long before amputation.

Thighs.—In the study of seventy-one thigh amputations we find twenty-eight deaths, or 40 per cent. Of these deaths the indication for operation was sepsis in 13, gangrene in 4, secondary hemorrhage in 5, gas infection in 5, and trench foot in 1. In the eight fatal cases showing gas infection, operation was performed at an average of four days after wound reception, and three patients had sustained complicating femur fractures.

Septic knee joints furnished amputation indications in thirty-two patients, of whom thirteen had complicating long bone fractures into the joint. Of the thirty-two, nine resulted fatally, a mortality of 29 per cent., which is the average mortality of the entire series, and in the nine deaths there were six with a joint fracture. The average time elapsing between injury and amputation in the nine fatal knee sepsis patients was eight days. In twenty-three septic knee cases in which amputation was performed and the patients recovered, there was an average of 20.7 days between injury and operation. This seemingly contradictory fact is accounted for, however, by the tendency of the knee joint sepsis to develop with relative slowness, owing to the fact that it is often secondary to the outer wound infection and seeps into the joint late.

Fracture of the femur alone, without knee joint sepsis, gave indication for amputation in seventeen instances, nine of which, or 53 per cent., ended fatally. The femur indication amputations followed by death were performed on an average of 21 days between injury and amputation, whereas those with recovery had an average interval of 8.5 days. The number of patients observed is too small from which to draw a general conclusion, but the striking difference between the average preamputation period after wounding makes it appear that operation was put off too long to obtain a live patient.

The mortality percentage after amputation from septic fracture of the femur in this series is equivalent to twice that from septic knee joints. This may be explained by the fact that a septic joint, although slow to develop, often becomes alarming from its pain and temperature symptoms, and attention to its sepsis is called earlier than in a more slowly developing thigh sepsis from gunshot fracture. The fracture patient is liable to run along for weeks, getting into a weak and septic state with great burrowing of pus, and to suffer severely from the amputation shock on account of his poor condition.

Gas infection existed in sixteen patients whose thighs were amputated; eight of them recovered. None of them had complicating gunshot fractures, and four sustained primary injury to the great vessels of the limb. Vessel injury renders the prognosis very bad in gas infections. Of the four patients in whom secondary hemorrhage induced thigh amputation, three died, two almost immediately and one later of septic thrombosis of the femoral vein. Secondary hemorrhage appears as the frequent cause of death in proportion to other causes and leads to the gravest prognosis. When anatomically possible, one might make a rule that in all severe secondary hemorrhages involving the main vessels, operation should be performed at once for ligature of the vessels of the limb involved, if the indications do not warrant amputation. If required, the removal of the limb may be performed later when the patient has recovered from shock and from blood loss. It is my experience that any secondary hemorrhage worthy the name complicating a septic fracture means a dangerous pathologic condition within the limb and is a strong indication for immediate radical procedure. In war wounds, practically all these limbs show false aneurysm on dissection. If the main vessels, as the femoral artery or its larger branches, are concerned, if there is severe sepsis present, the vein should be tied at the same time as the artery, because that act cuts off the possibility of venous hemorrhage and of septic absorption by the vein—a very fertile source of such absorption.

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[1] Speed, Kellogg: Localized Gas Infections in War Wounds Treated by Muscle Group Excision, The Journal A. M. A., Jan. 26, 1918, p. 225.

AMPUTATION TECHNIC

The one time popular guillotine operation or straight cut off of all tissues on the same level is falling into disuse. It means, of course, a secondary amputation which is always one involving bone resection. The subsequent application of stump splints fails many times to save the length of limb obtained, and with the recent development of clearing station surgery, the use of suitable flaps is now returning. In my experience these points have been observed: A circular skin incision answers the purpose in the majority of instances. The skin flap can be slit up one or both sides to obtain an easily reflecting cuff, which is cut very long. If it is damaged by the pathologic condition present, any flap device that meets the findings of the particular injury is used. In septic limbs the muscles are generally cut off transversely higher up; there is no attempt to make pyramidal flaps of them. The bone is also cut higher, and aperiosteal bone ends are invariably left—in the femur for a distance of 1 inch at least. On account of secondary hemorrhage from bone marrow or of late infection spreading up the long bones by way of the marrow opening, and also to avoid endosteal proliferation, the medullary cavity is often curetted out for three-fourths inch above the sawed end and its cavity filled with bismuth iodoform petrolatum paste[2] or bone wax.

Ether is the anesthetic of choice. In extremely septic patients in poor condition, spinal anesthesia with stovain, the patient being held in a semiupright position, gives excellent results. No instance of its administration has failed, and such severe types of amputation as hip disarticulation have been satisfactorily performed with its aid. When shock effects were greatly feared, in selected patients treated with spinal anesthesia, the sciatic nerve has been injected with stovain before severance. An attempt has been made to perform all the surgical work rapidly. A very complete hemostasis of severed tissues is to be desired. For that purpose mattress stitches of catgut are often employed in the large muscle bundles of the thigh. When sepsis is not too great, the skin flaps are often loosely approximated by silkworm-gut stitches. No attempt is made to suture muscles in war amputations. Dry or clinging gauze packs in open stumps should be avoided. If a pack is indicated for capillary oozing, paraffin gauze strips or a paraffin gauze covering over dry gauze packing can be used. The removal of dry gauze necessitates a second anesthesia, usually of nitrous oxid, and some packs are neglected when patients are passed along in rapid evacuations.

PRACTICAL SUGGESTIONS

From the notes on an inquiry carried out at certain military hospitals in England regarding the later stages of amputations and compound fractures, circulated in January, 1918, we may learn many practical points. Some of the conclusions reached are:

Upper Extremity.—For the forearm, a stump less than 2½ inches long below the elbow is useless, and reamputation will be necessary.

Amputation should not be done through the elbow joint because the stump is bulbous and unsuited for an artificial limb; hence one should amputate above the humeral condyle.

For the Arm: Any portion of the humerus should be left; a stump 3 inches long is the desirable minimum. A 5 inch stump gives a good working arm and an 8 inch stump the most satisfactory result. The humerus should always be divided above the epicondyles to avoid a bulbous end.

Lower Extremity.—Foot: Comminuted fractures of the tarsal bones, with involvement of the midtarsal joints, particularly when combined with fractures of the first or fifth metatarsals, are best amputated; the foot resulting from the prolonged suppuration and necrosis consequent on such injuries is generally painful and useless, and inferior to an artificial one.

Ankle: Severe comminuted fractures involving all the bones of the ankle joint should, as a rule, be amputated. When comminution is limited to the astragalus, a good foot may be obtained by removal of this bone—an operation which should have a greater measure of success if done in the earliest stage.

Syme's amputation should be performed whenever the conditions are such as to give a reasonable probability of success This operation, if well done with a thick and well nourished heel flap, gives an excellent weight-carrying stump, superior to that in the lower part of the leg. The success of Syme's amputation depends entirely on the condition of the heel flap and if this is thin and ill-nourished, reamputation higher up may become necessary. At casualty clearing stations, opportunities will occur from time to time in which Syme's amputation may be safely performed in place of amputation through the leg.

Pirogoff's amputation is universally condemned; the os calcis is likely to be drawn back by the Achilles tendon, exposing the scar to pressure and making it difficult to fit a satisfactory artificial foot

Leg: The site of election is from 9 to 11 inches below the knee according to the height of the patient, 9 inches for a short man, 11 inches for a tall one, measured from the tubercle of the tibia to the end of the stump. (This probably means for the starting incision of the skin flaps. Certainly a bone stump that long is impracticable.) The best method is by lateral flaps, containing as much muscle as possible. The fibula should be cut 1 inch shorter than the tibia.

Amputation immediately above the ankle joint, where the tissues are chiefly fibrous, does not give a satisfactory stump.

The highest point at which amputation of the leg will give a useful stump is 2 inches below the tubercle of the tibia. When it is necessary to divide the bone at a higher level, it is better to operate above the knee joint.

It is important that all amputations below the knee should be kept extended on splints, as permanent flexion of the stump is easily acquired and is a very troublesome deformity to correct.

Knee Joint: Amputation should never be performed through the knee joint except as a temporary measure when necessary to save life. The stump left after such amputations is unsatisfactory and difficult to fit into a bucket.

Thigh: The nearer to the condyles the bone is divided, the better is the stump, provided too much of the bulging end of the bone has not been left. The most perfect result is obtained by the Stokes-Gritti operation, which gives an excellent weight-bearing stump. When the conditions are favorable for doing this operation it should undoubtedly be practiced at the casualty clearing stations, as has already been done by some operators. Failing Stokes-Gritti, Carden's operation gives a good weight-bearing stump. Amputation higher than Carden's will not give a stump that is capable of bearing weight on its end; the important point to bear in mind is that the greater the length of femur left, the more useful will be the limb.

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[2] Bismuth subnitrate, 1 part; iodoform, 2 parts; sufficient liquid petrolatum to make a thick paste.

The best method of amputation of the thigh is by long antero-external and short postero-internal flaps, the resulting scar after this operation being well drawn up to the inside and behind, the seat of least pressure.

A reasonable amount of muscle in the flaps is an advantage, but flaps should not be cut too thick and fleshy, as the stump will then be difficult to fit into a bucket.

In the upper third of the thigh it is better to leave any portion of femur, however short, rather than to disarticulate. Even sawing through the neck of the femur gives a firmer and better stump than amputation through the hip joint.

THE TREATMENT OF EMPYEMA

BY FREQUENT ASPIRATION AND THE INJECTION OF SOLUTION OF FORMALDEHYD AND GLYCERIN

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The treatment of empyema is that of pus anywhere —drainage. But the manner in which drainage shall be secured is a matter of vital importance, especially in the Army, where it is necessary to get men back to their organizations at the earliest possible date. Any method of treatment that cuts short convalescence will be of tremendous value to the government. It will result in a great saving of money and man-power, and these are the factors that will win the war.

Thoracotomy and costectomy are the methods most frequently employed. In some virulent cases in which rapid drainage is necessary, costectomy is the only method for consideration. This always leads to contraction and collapse of the lung to a greater or less degree. During the convalescence these men are held in convalescent wards, where, at least in this camp, they are put through a series of graduated exercises and thus brought back to normal. Thus weeks and sometimes months pass before the men can be sent back to duty. Of course, there will be a period of convalescence no matter which method of treatment is used; but we believe that this period can be materially shortened.

PROTOCOL OF CASE 1*

Aspirated	Amount of Pus Removed, Cc.	Bacterial Estimation per Field
1/28/18	600	From 60 to 75
2/11/18	2,000	From 40 to 50
3/14/18	2,000	From 40 to 50
4/15/18	2,000	From 40 to 50
5/15/18	2,500	From 50 to 60
5/18/18	200	From 20 to 25
5/20/18	90	From 5 to 6
5/23/18	30	Sterile
5/27/18	Dry tap	Temperature and pulse normal

* V. R., private, aged 24, entered base hospital, Jan. 8, 1918, suffering from scarlet fever. Jan. 28, 1918, empyema developed.

Our method is not new, being simply plain aspiration with one or two variations.

Under the direction of Major S. M. Rinehart, tuberculosis specialist at Camp Sherman, we undertook a series of cases in which aspiration was done followed by the injection of 2 per cent. formaldehyd solution in glycerin. Aspiration was done every other day, if there were physical signs of fluid, and that is the point we wish to emphasize. We do not wait for the temperature and pulse to go up, indicating sepsis. When once the diagnosis is made, aspiration is done as rapidly and as frequently as the pus accumulates, and we would not hesitate to do this every day, although every other day seems sufficient. The idea is simply to keep the chest cavity free from pus as nearly as possible, to remove it as rapidly as it accumulates and to inject 2 per cent. solution of formaldehyd in glycerin as advocated by Murphy. A large caliber needle is used, and the operation is done under local ethyl chlorid anesthesia. No harmful effects result from the repeated aspirations, and the patients complain very little of pain, much preferring aspiration to the discomfort of allowing the pus to remain and its resultant absorption.

PROTOCOL OF CASE 2*

Aspirated	Amount of Pus Removed, Cc.	Bacterial Estimation per Field
2/23/18	4	75
3/23/18	1,500	75
4/12/18	2,500	From 50 to 60
5/15/18	3,000	49
5/21/18	1,500	35
5/24/18	500	20
5/26/18	200	From 10 to 12
5/30/18	30	From 5 to 6

* J. Z., private, aged 23, entered base hospital, Jan. 30, 1918, suffering from influenza. Feb. 18, 1918, empyema developed.

By this method, men get well far more quickly than by thoracotomy or costectomy, and there being no collapse of the lung, the resulting convalescence is greatly cut short. There is no resulting deformity of the chest; and the formation of localizing adhesions about the drainage tube, thus forming walled-off pockets of pus and requiring secondary operation, never happens. It is a method which we think should always be employed first, since it will prove sufficient in the majority of cases, can do no harm, and offers no contraindication to costatectomy, which can be done later if indicated.

Records of two typical cases are given, showing dates and number of times aspiration was performed, with bacterial estimation done on each specimen of pus obtained. These cases are interesting in that they show how rapidly the bacterial count and the total amount of pus increased as long as aspiration was done at long intervals, and also how rapidly both dropped when aspiration was done whenever the physical signs indicated pus, however small the amount. Up to May 15, aspiration was done about once a month. From that time on it was done as rapidly as the pus accumulated, and the rapid drop in the bacterial count would seem to indicate that this is a valuable scientific and rational addition to our armamentarium.

Reforming the Soda Fountain.—In addition to abolishing the common drinking cup, the government has decreed that soda fountains in or near training camps must either sterilize their glasses or use paper or paraffin containers. Seven or more states and a number of cities have taken action regarding cleanliness in connection with the dispensing of soda water. Tennessee has a model law for this purpose, to be administered by the Food and Drug Department of the state, which sets forth strict requirements regarding places used for the preparation, sale or distribution of foods and their protection from all foreign or injurious contamination. Exact procedures are prescribed for the cleaning of glasses, dishes, spoons and all receptacles and implements used in serving food and drinks, either by hand washing, mechanical washers, live steam and dry heat, and the use of paper receptacles. The law has especial reference to soda fountains, soft drink and ice cream stands.

DIPHTHERIA AND DIPHTHERIA CARRIERS IN ARMY CAMPS

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CAMP SHERMAN, CHILLICOTHE, OHIO

The number of admissions to the base hospital at Camp Sherman has on several occasions taxed its bed capacity. This has necessitated the overcrowding of wards and the placing of patients in close contact in aisles and otherwise. The inadvisability of this procedure was clearly and early demonstrated in the frequency of new infections and reinfections. To meet the demands made on the hospital for the care of patients, a survey was instituted to determine the means available for increasing the number of vacant beds without resorting to ward overcrowding. It developed in this survey that the desired end in part might be obtained by the prompt and intensive treatment of the trivial conditions causing large numbers of hospital admissions to the end that the average days in hospital be lessened. This plan contemplated the acquiring of the needed bed space in hospital and, what is of greater significance, making it possible to return these patients earlier to their organization for duty and training.

As a single item in this survey it was noted that the average stay in hospital was high for a group of individuals who were not clinically ill, but who were a potential source of infection to their fellows from being carriers of various organisms, notably diphtheria and meningitis. Although the etiology of scarlet fever is not established, the hospital status of scarlet fever patients after the active stage is essentially that of carriers. In the case of scarlet fever, the arbitrary holding of all patients for six weeks undoubtedly leads to the retention in hospital of many individuals well beyond the time that they are sources of infection. On the other hand, the indiscriminate release at the end of six weeks of all scarlet fever convalescents who are physically fit is not without risk of contact infection if the retention of *Streptococcus hemolyticus* in the nasopharynx is accepted as a criterion of the patient's potential infectivity. In the case of meningitis and diphtheria, in the days prior to universal masking, it was exceedingly difficult for either convalescent carriers or contact carriers to exhibit a sufficient number of negative laboratory examinations to justify their release. Judged in terms of results obtained after the institution of masking, it may be accepted that the long hospital stay for certain carriers of diphtheria and of meningitis is to be attributed to constant reinfection of each other on the part of carriers living together in intimate contact. The remedying of this condition was a definite factor in reducing the stay in hospital of meningitis and diphtheria carriers. However, over and above these bettered conditions, it was found that, regardless of precise treatment of various kinds, many carriers persisted in the retention of organisms. Since diphtheria carriers are always present in considerable numbers, the problem of such carriers in relation to the loss of man power is of appreciable economic concern. Accordingly, all pertinent data relative to diphtheria and diphtheria carriers have been collected with a view of formulating a program for the expeditious, adequate handling of such conditions. This program has as its chief aim the systematizing of all protective procedures so that (1) the quarantining and isolation is such as to hamper to a minimum the duties and training of the organizations in which the cases appear, and so that (2) the treatment of isolated carriers is such as to reduce to a minimum the time required to free the carriers of diphtheria organisms.

DIPHTHERIA CARRIERS

The outstanding factor in the communication of diphtheria is the matter of diphtheria carriers. These carriers are of two types. The "convalescent carrier" is the individual who, after having been a clinical diphtheria case, retains in the pharynx, nasopharynx or elsewhere the diphtheria bacillus. The "contact carrier" is the individual who, although immune to diphtheria, after coming in contact with a convalescent carrier or other contact carrier acquires and harbors the diphtheria organisms. The convalescent carrier, from the fact that virulent organisms are harbored, is potentially the source of greater danger of infecting others than the contact carrier who harbors in a high percentage of cases of avirulent diphtheria bacilli. However, from the fact that the clinical carrier was earlier known to be a clinical case and consequently segregated, this type practically is of less danger than the contact carrier who, being unaware of his condition, mingles freely with large numbers of persons.

The frequency of diphtheria carriers among normal healthy persons has been investigated by Goldberger and his associates.[1] Examinations were made on 4,093 healthy persons of diverse ages. Of this number thirty-eight, or 0.928 per cent., were found to be carriers. From an extension of these figures, any city of 800,000 population would contain between 7,000 and 8,000 carriers among its healthy citizens. By the same token the average cantonment containing 40,000 soldiers would have distributed among them, in the absence of a diphtheria epidemic, approximately 400 carriers. However, it may not be accepted that all such carriers are distributors of virulent organisms. Of nineteen carriers detected by Goldberger, only two when examined proved to be of high virulence. The same proportion applied to the average personnel of a cantonment would indicate that only about forty in a camp are the actual disseminators of virulent organisms causing the sporadic cases of diphtheria common to every camp. These figures of Goldberger's are appreciably lower than those obtained by other investigators of the same problem (von Scholly, Moss, Nuttall and Graham Smith).

The frequency of diphtheria carriers among troops in the vicinity of diphtheria patients and caring for them is reported by Labit[2] of the French army in charge of diphtheria for the "Ninth Region." In this portion of the country prior to the war, diphtheria was always endemic among civilians. On the station-ing of troops there, diphtheria early occurred. In 1915, 1,450 cases developed, with twenty-six deaths. This number has been much reduced during the ensuing years. At all times, however, the percentage of carriers in the environment of diphtheria averaged 28.9, and frequently 50. In one isolated hospital unit, concomitant to the occurrence of a single case of clinical diphtheria, nineteen carriers among nurses and attendants developed. The number of carriers became so large and with so great difficulty were freed of their organisms that the physically fit were isolated, but given employment as gardeners and the like.

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[1] Goldberger, Joseph; Williams, C. L., and Hatchel, F. W.: Bull. 101, Hyg. Lab., U. S. P. H. S., 1915.

[2] Labit: Arch. de méd et de pharm. mil., 1917, 67, 779.

Obviously no data obtained either from civilian centers or from a few army camps may be accepted as accurately representing conditions generally. It is sufficient to maintain that in every camp a varying percentage of the personnel are diphtheria carriers, some of whom are carriers of virulent organisms. The larger number of sporadic cases of clinical diphtheria originate from contact with these carriers. The detection and isolation of these carriers minimizes diphtheria as a camp disease.

DIPHTHERIA AND DIPHTHERIA CARRIERS AT CAMP SHERMAN

During the period covered by this study (from Jan. 1 to June 1, 1918) approximately 55,000 soldiers have been on duty at Camp Sherman. The largest number present at any one time has been slightly in excess of 40,000. Among the total number there have been detected sixty-three clinical cases of diphtheria. These have been distributed as follows: Forty-six cases occurred in various line organizations; eight developed in patients under treatment in the base hospital, and nine appeared in base hospital attendants. It is noteworthy that no two cases of diphtheria have occurred in any line organization within thirty days of each other, and only in five instances have second cases occurred in the same organization within any time limits.

Upon the detection at divers times of the diphtheria cases that make up this total of sixty-three, procedures hereinafter to be described were carried out which resulted in the recognition of eighty-nine contact carriers. These carriers were detected in organizations as follows: seven were detected in line organizations; forty-three were detected in patients undergoing treatment at the base hospital, and thirty-nine occurred in base hospital attendants. The higher percentage of carriers in base hospital patients and attendants is attributable in part to the greater frequency of exposure to actual cases of diphtheria; but more especially is this due to repeated extensive examinations, as a safeguard against undue exposure of patients. These eighty-nine carriers were detected out of 3,215 exposed individuals examined. The eighty-nine carriers represent 2.76 per cent. of the number examined. These sixty-three convalescent carriers plus the eighty-nine contact carriers form the material on which this report is based.

If the facts are considered that the individuals composing the camp live under crowded conditions, that pass privileges make it possible for these men to visit nearby large cities where diphtheria is at all times present, and that the camp is at all times visited by large numbers of civilian men, women and children, it will be appreciated that the total number of diphtheria clinical cases that have occurred is small. If corresponding figures emanate from other camps, it is tenable to maintain that diphtheria is not a major camp disease, and that the occurrence of sporadic cases is not a matter of any especial gravity.

PROTECTIVE PROCEDURES AVAILABLE

The technical means at hand for the detection and prophylaxis against diphtheria are matters of such common information that detailed descriptions will be avoided.

1. *The Schick Reaction.*—This is the only ready method for determining whether or not an individual is immune to diphtheria. While not absolutely infallible, as shown by the development of at least one clinical case of diphtheria in this hospital among men having reacted negatively, yet it is of no little value in quickly and comparatively accurately eliminating from contacts those men who are naturally immune and have no need of being rendered passively so.

The technic of the test is as follows:

> A solution of diphtheria toxin is prepared for the purpose of such strength that 0.2 c.c. represents one fiftieth of the minimum lethal dose for a 250 gm. guinea-pig. It is essential that this solution be freshly prepared, owing to the fact that it deteriorates rapidly in such dilution, losing its value within twenty-four hours after preparation. This amount, 0.2 c.c., is injected intracutaneously on the flexor surface of the forearm. As a control, 0.2 c.c. of the same strength toxin previously heated to 75 C. for five minutes is injected in like manner about 2 inches below the site of the first injection. It is all important that the injection be made intracutaneously, as otherwise the test is of no value. A good guide for the insertion of the needle into the proper layer of the skin is that one should be able to see the oval opening of the needle through the superficial layers of the epidermis.

The positive reaction represents the action of an irritant toxin on tissue cells that are not protected by antitoxin. It indicates, therefore, an absence of immunity to diphtheria. Within from thirty-six to forty-eight hours the positive reaction consists of a circumscribed area of redness and slight infiltration, which measures from 1 to 2 cm. in diameter. The degree of redness and infiltration varies to a great extent with the relative susceptibility of the individual.

In the negative reaction, the skin at the site of injection of the toxin remains normal, as the result of the protection of the cells by the existing immunity of the individual. The pseudo-reaction consists of red areas at both sites of injection and represents a local anaphylactic response of the tissue cells to the protein substance of the toxin dilution. The same reaction appears in the control consisting of the destroyed toxin as in the unheated or active toxin. This pseudo-reaction in the hands of experienced observers can be definitely differentiated from the positive reaction. It is more often of an urticarial nature, smooth in outline as compared with the irregular redness of the positive reaction, usually considerably smaller, reaching its height more quickly and disappearing more rapidly. The following show either negative or pseudo-reaction: 90 per cent. of adults; from 65 to 85 per cent. of children between 2 and 14 years; 60 per cent. during the first year of life, and from 93 to 90 per cent. of the new-born. The inference is that only 10 per cent. of persons of military age are susceptible to diphtheria.

2. *The Toxin-Antitoxin Reaction.*—The occasions for the expedient employment of diphtheria toxin-

antitoxin mixture as a means of prophylaxis are limited in army camps. Under optimum conditions of camp public health work, it might prove desirable to do Schick tests on the entire personnel of the camp and administer successive doses of diphtheria toxin-antitoxin to all giving positive Shick reactions. In view, however, of the large number of individuals to be so tested and treated, the considerable expense and the time and labor involved, it is to be questioned whether the seriousness of diphtheria as a camp infection warrants the tedious procedure. Since the immunity derived from the administration of toxin-antitoxin mixture is active and permanent and without the same degree of risk of anaphylactic reaction, this form of protection is advantageous when considerable time is available. From four to ten weeks are necessary for the establishment of adequate protection. This fact militates against the use of toxin-antitoxin mixture in the presence of contacts with an actual case. Its expedient use in Army camps is confined to physicians, laboratory workers, nurses and such others as handle continuously diphtheria patients or diphtheria materials, for whom the frequent administration of immunizing doses of antitoxin is undesirable. When employed, this active immunization consists in the administration of a series of three injections given subcutaneously at intervals of from five to seven days. Its use should be confined to such individuals as react positively to the Schick reaction. The mixture consists of a combination of from 85 to 90 per cent. lethal plus dose of toxin to each unit of antitoxin. The quantity injected successively is 1 c.c. Certain investigators advise the simultaneous injection of 1 billion killed diphtheria bacteria.

While diphtheria toxin-antitoxin under certain conditions is a desirable substitute for antitoxin, its use is sharply contraindicated as a treatment for clinical diphtheria; also it is without significant value as a treatment for diphtheria carriers.

3. *Prophylactic Antitoxin.*—The promiscuous use of immunizing doses of antitoxin for all contacts with diphtheria cases without resorting to the use of the Schick reaction is unwarranted. The Schick reaction, rightly administered and rightly interpreted, is an accurate criterion for discriminating between susceptible and nonsusceptible individuals. A decisive negative Schick reaction almost invariably indicates a permanent immunity against diphtheria. Such individuals should not be given diphtheria antitoxin. The practice not only wastes valuable and expensive antitoxin, but also sensitizes unnecessarily a large number of individuals. However, the frequently encountered apprehension lest anaphylaxis occur is for the most part unwarranted. The reaction from an initial administration of antitoxin is rarely severe, and the duration of sensitization is short. Persons known to have received serum of any kind at any prior time may be desensitized through the subcutaneous administration of minute doses (0.25, 0.5 and 1 c.c. doses) at half hour intervals. This procedure, however, is rarely necessary either for immunization or for clinical use of antitoxin when the antitoxin is administered subcutaneously or intramuscularly.

4. *Virulence Tests.*—After the detection of a contact carrier, it is possible, if deemed expedient, to isolate in pure culture the diphtheria bacillus, and after repeated transplants on specially designed mediums determine the relative toxicity in terms of its action on guinea-pigs. This process will demonstrate that by far the greater number of carriers harbor organisms of scant toxicity. As a routine procedure this is inadvisable, on account of its tediousness and more especially on account of the fact that no evidence is in hand to show that avirulent organisms harbored in one throat may not display higher virulence when acquired in another throat. If virulence tests are carried out, the nonvirulent carriers detected should not be released until free of organisms.

5. *Cultural Methods.*—The swab contact made for the purpose of obtaining cultures should not be confined to the throat, but should include the nasopharynx as well. Cultures made from the nasopharynx plus cultures made from the throat will demonstrate a higher percentage of positive carriers than cultures made from the throat alone. If the number to be examined at any one time is small, separate nasopharynx and throat cultures should be made. However, when it is necessary to examine large numbers of individuals, from the point of view of economy in materials, labor and time, it is more practical to make a combination contact of nasopharynx and throat on one swab. For this purpose the bent wire swab is desirable. Since the diphtheria organism may be harbored deep in the tonsillar crypts after having cleared up on the surface of the tonsil, it is desirable that the swab always be small so as to penetrate more deeply into the tonsillar crypts. Loeffler's medium is the culture medium of choice for routine examination. So also Neisser's method of staining affords a maximum of accuracy in detecting organisms, with a minimum of technical difficulty in preparing the stains and in staining.

6. *General Measures.*—Apart from the specific measures outlined above, much may be accomplished in the way of diphtheria prophylaxis by careful general sanitation relative to such matters as bed spacing, ventilation, drinking water facilities, and the prevention of ordinary sore throats. It is an especial function of the medical officer on duty with troops to give consideration to complaints of sore throats and to see that suspicious throats are brought to the attention of the public health laboratory.

PROTECTIVE PROCEDURES IN FORCE AT CAMP SHERMAN

The measures grouped below obviously cannot be carried out in full for every detected case. They represent the optimum of protection which is approached as completely as the conditions for the several cases permit.

A. *Procedures Adopted in Line Organizations After the Diagnosis of a Case of Diphtheria.*—It is purposed to minimize the danger of spread of contagion and at the same time interfere as little as possible with the organization in the performance of its duties. The latter consideration is a factor that the zealous public health worker is apt to neglect.

1. The detection of one or two cases does not call for a quarantine of the organization (company, battery, troop, detachment, etc.).

2. All known immediate contacts of the patient are segregated at once. No fixed rules can establish who contacts are. Under immediate contacts are included:

(*a*) Men sleeping on either side and across from the patient. If the patient sleeps in a small room, all occupants are included.

(*b*) Messmates on either side and opposite to the patient.

(*c*) Fellow workers who have continually been in close contact with the patient.

(*d*) Any intimate comrades with whom there has been frequent close contact.

The total number of contacts usually averages from ten to twelve.

3. Schick tests are made on all segregated contacts. Cultures are made both from the nasopharynx and from the tonsillar region of all the segregated men. Masks are worn by all men from the time of their segregation, in order that noncarriers may not be unduly exposed during the period of observation.
4. The following morning the cultures are examined. In the event of the detection of any carriers, they are transferred immediately to the hospital. Their further disposition is considered below. All negatives are released for duty.
5. At the expiration of approximately thirty-six hours, the Schick reactions are observed in these men, and if any are positive, prophylactic doses of antitoxin are administered. Usually not more than one or two give a positive Schick reaction.
6. The medical officers on duty with these troops are instructed to inspect the throats of all men of the organization for suspicious throats during the ensuing ten days.

B. *Procedures Adopted in Hospital Wards in Which Cases of Diphtheria Appear, the Patient Being Able to Be Transferred Immediately to the Diphtheria Ward.*—More complete methods may be instituted here since the men have no duties to perform; also, more exact methods are desirable from the fact that such men on account of being diseased are probably of lower resistance and more liable to diphtheria infection.

1. The patient is removed from the ward to the diphtheria ward.
2. The ward is not quarantined.
3. The close contacts are noted, and cultures and Schick tests are made.
4. If the ward is not already masked, all patients, orderlies, nurses and ward surgeons are required to wear masks during the period of observation.
5. No patient is transferred from the ward until his culture is reported negative. New patients are masked on admission to the ward.
6. The following morning, cultures are examined. If carriers are detected, these are at once removed from the ward and cultures made of the entire ward for further carriers. Schick tests are caried out on patients in the ward.
7. Prophylactic doses of antitoxin are administered to the small number showing a positive Schick reaction.

C. *Procedure in Ward Where Diphtheria Patient Is Too Ill to Be Transferred to Diphtheria Ward.*—

1. The entire ward is quarantined. All quarantines for diphtheria are instituted and controlled by the public health laboratory.
2. The patient is placed in a single room in the ward until he is able to be transferred. Cultures and Schick reactions are made of the entire ward.
3. If not already masked, all patients, orderlies, nurses and the ward surgeon are required to be masked.
4. On examination of cultures, any carriers detected are transferred to the diphtheria ward if their condition warrants; otherwise they are placed in cubicles.
5. Repeated examinations are made by cultures at two day intervals.

When the patient's condition warrants, he is removed to the diphtheria ward. After his removal, two negative examinations of the ward are obtained prior to release from quarantine.

D. *Procedures Adopted for Diphtheria Suspects Sent to the Hospital for Diagnosis.*—

1. All suspects are masked on entering ambulances bringing them to the hospital.
2. Such patients are held in the observation ward in cubicles until a laboratory report can be made.
3. Since the membrane of Vincent's angina simulates in many respects the membrane of diphtheria, a clinical diagnosis of diphtheria, followed by the administration of antitoxin, is not made in the absence of the laboratory diagnosis of diphtheria until smears from the patient's throat are examined for the organisms of Vincent's angina. A diagnosis of Vincent's angina may be made with such facility that no time is lost in the administration of antitoxin in case the condition proves to be diphtheria. It is not unusual to find diphtheria and Vincent's angina coexistent. The demonstration of the organisms of Vincent's angina does not exclude the existence of diphtheria.
4. On laboratory diagnosis, the patient is transferred from the observation ward to the diphtheria ward.

E. *Procedures Carried Out in the Diphtheria and Diphtheria Carrier Wards.*—

1. These wards are at all times quarantined, masked and cubicled.
2. Diphtheria patients, convalescent carriers and contact carriers should be segregated in distinct groups.
3. As the treatment of clinical diphtheria is a matter of common information, it is not entered into here.
4. The treatment of diphtheria carriers is taken up in a separate section below.
5. Owing to the fact that the larger number of carriers are physically fit, such individuals under supervision are assigned certain outside duties. Masks are worn during this work.
6. Cultures are made at five day intervals on all carriers. These cultures are made from swabs of the nasopharynx and tonsils. Treatment of carriers is discontinued twenty-four hours before cultures are made. Three successive negative cultures form the minimum requisite for release.
7. Two weeks after discharge from the hospital, every carrier is required to report to the outpatient department of the hospital for final culture. A number of carriers discharged after showing three consecutive negatives have shown themselves positive on a final culture made two weeks afterward, necessitating their return to hospital.

TREATMENT OF DIPHTHERIA CARRIERS

It is to be conceded that the treatment of diphtheria carriers is an unsatisfactory chapter in therapeutics. Many substances have been employed and successes reported by various workers, but general corroboration has not established the efficacy of any of these materials.

Treatment by spraying with the staphylococcus or other organisms has been reported by Bell,[3] Fay,[4] Lorenz and Ravenel,[5] Ravenel,[6] Rolleston,[7] Sanford,[8] Wiemer,[9], Womer[10] and others.

Roskam[11] advocates the use of desiccated diphtheria antitoxin administered by insufflation. The use of diphtheria endotoxin is recommended by Hewlett.[12] Vaccines are reported efficacious by Weil.[13] Various other materials, such as kaolin, jasmine oil, Dobell's solution, ferric chlorid, diverse antiseptics and astringents have all been employed without establishing complete evidence as to their efficacy. Tonsillectomy as a therapeutic measure in getting rid of diphtheria organisms has been reported by Ballantyne and Cornell,[14] Friedberg[15] and others.

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[3] Bell, A. J.: Arch. Pediat., 1916, **33**, 836.

[4] Fay, J.: California State Jour. Med., 1913, **11**, 197.

[5] Lorenz, W. F., and Ravenel, M. P.: Wisconsin Med. Jour., 1913, **12**, 35.

[6] Ravenel, M. P.: Tr. XV Internat. Cong. Hyg. and Demog., 1913, **4**, 170.

[7] Rolleston, J. D.: Brit. Jour. Child. Dis., 1913, **10**, 298.

[8] Sanford, A. H.: Med. Rev. of Rev., 1913, **19**, 676.

[9] Wiemer, R. G.: New York State Jour. Med., 1913, **13**, 95.

[10] Womer, W. A.: Results of Staphylococcus Spray Treatment in Forty-Two Cases of Diphtheria Carriers, The Journal A. M. A., Dec. 27, 1913, p. 2293.

[11] Roskam, J.: Arch. méd. belges, 1917, **70**, 406.

[12] Hewlett, R. T.: Am. Med., 1915, **10**, 280.

[13] Weil, A. J.: New Orleans Med. and Surg. Jour., 1915, **77**, 432.

To us it appears established that the fundamental of carrier treatment is the placing of such carriers in the hands of competent throat specialists. The use of any materials, however efficacious, will not remove the organisms except on the surface of the tonsils and throat. The application of materials is only infrequently made to include the nasopharynx, and even less frequently to penetrate into the crypts of the tonsils, adenoids and perieustachian tissues. The required number of negative cultures may be obtained after the use of many antiseptic materials, only to have the organisms reappear through extension from a retained focus deep in some crypt. Cultures from the interior of excised tonsils of diphtheria carriers repeatedly have exhibited viable diphtheria bacilli when surface cultures indicated an absence of such organisms. Diphtheria carriers should be referred as a routine to a medical officer of the throat department, who will make examinations for and treat any ulcers or crypts in the tonsillar or adenoid tissues. In case the tonsils are badly involved, tonsillectomy is the procedure of choice, and should early be resorted to. When the general pathologic condition of the throat is adequately cared for, the state of being a carrier of diphtheria may be expected to clear up under treatment with various of the above-named methods. In this hospital during the period prior to that covered by this report and during the first month covered by this report, no especial consideration was given to general throat conditions. No masking of patients was done, no outside work or setting-up exercises were given. On admission of carriers to the hospital, a prophylactic dose of antitoxin was administered. The treatment included the use of various astringent applications, gargles of saline and hot Dobell's solution. During this period certain carriers remained in the hospital more than three months, and the average number of days in the hospital was fifty-five for diphtheria cases, in contrast to twenty-three days for the months of February, March, April and May.

Beginning at approximately February 1, an effort was made to standardize the treatment of all diphtheria carriers. The measures noted in Paragraph E of the foregoing section were instituted. The administration of antitoxin to carriers was discontinued as ill advised. Medical treatment then in vogue was discontinued as unsatisfactory. Treatment was especially directed to the elimination of existing open throat lesions. Tonsillectomy was carried out in a number of cases with a quick termination of harboring diphtheria organisms in all cases. In addition, a systematic treatment with chloramin-T (chlorazene) was inaugurated. This use of chlorazene in the treatment of diphtheria carriers was anticipated by Dunham and Dakin[16] without, however, being used in any actual diphtheria carrier cases. Its application, as we have employed it, consists in the use of an aqueous solution of 0.25 per cent. strength, administered as a gargle three or four times daily. In certain cases, the application was made by throat specialists to insure the reaching of remote points in the nasopharynx. The gargling was followed with an oily spray of dichloramin-T of 2 per cent. strength. It may not be maintained that the chloramin action is exclusively responsible for the appreciable reduction of days in hospital of carriers. This is in part due to the chlorazene-dichloramin-T treatment and in part to the general painstaking systematizing of the entire care of such patients. Through the use of these several described procedures, it has been possible to return the carriers to duty after an average of twenty-three days in hospital. During the month of May our systematizing of treatment made it possible to discharge all diphtheria patients (sixteen in number) after fifteen days in hospital, and all carriers (twenty-nine in number) after sixteen days in hospital.

SUMMARY

1. With reasonable precautions, diphtheria is unlikely to become a serious menace to the health of army camps.

2. During the five months covered by this report, sixty-three cases of clinical diphtheria occurred, with no deaths; 3,215 exposed persons were examined, eighty-nine of whom proved to be carriers; the number of carriers detected is 2.76 per cent. of the number of exposed persons examined.

3. The employment of the system for the care and treatment of diphtheria carriers described in the foregoing has reduced the average stay in hospital for convalescent carriers from fifty-five days in the first month of this report to fifteen days in the last month of the report, with an average for the four months of twenty-three days. The period in hospital for contact carriers has been reduced to sixteen days for the last month of the report, with an average of twenty-three days for four months.

4. The procedures described have greatly facilitated the early return of diphtheria patients and diphtheria carriers to their organization, physically fit for duties and training.

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[14] Ballantyne, C. C., and Cornell, B. S.: Brit. Med. Jour., 1917, 2, 686.

[15] Friedberg, S. A.: Removal of Tonsils and Adenoids in Diphtheria Carriers, THE JOURNAL A. M. A., March 11, 1916, p. 810.

[16] Dunham, E. K., and Dakin, H. D.: Brit. Med. Jour., 1917, 1, 865.

Reaction Following Administration of Neo-Arsphenamin (Neodiarsenol Brand).—A strong married woman, aged 36, weighing 175 pounds, presented herself for treatment for the secondary stage of syphilis with a 100 per cent. Wassermann reaction. During the fifteen months preceding she had received six intravenous injections of the German-made neosalvarsan without any reaction. One ampule of 0.3 gm. of the neodiarsenol brand of arsphenamin was dissolved in 10 c.c. of distilled water previously boiled and then cooled to body temperature. The solution was cloudier than the imported product. Thirty seconds after the entire dose was given the patient began to gasp for breath and complained of tingling in her fingers and hands. She became almost pulseless, her pupils dilated, and her eyes rolled back as if she were dead. The stimulant closest at hand was aromatic spirit of ammonia, which I placed to her nose. She began to rally after a minute, and then became nauseated but could not vomit. Her head began aching very severely. I gave her a hypodermic strychnin sulphate, 1/60 grain, for her pulse was still very weak and rapid. This dose was repeated fifteen minutes later. After one and one-half hours she was able to ride home in a car. All symptoms had abated except weakness and the headache, which remained about five or six hours, after which she was perfectly normal.—K. M. RICHARDSON, M.D., Rankin, Ill.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 27, 1918

THE DECLINING BIRTH RATE AND THE MEDICAL PROFESSION

The appalling losses of human life that all of the nations now at war are experiencing cannot fail to awaken thoughts as to the ultimate effects of these sacrifices on the population of the diverse countries in the decades to come. War almost inevitably leads to a decline in birth rate; but it is by no means the only, if, indeed, it is the foremost factor in the more permanent variations in the increment of a nation's population. Long before the present conflict the situation in France was deemed sufficiently serious, from a national standpoint, to require the appointment of a commission to study the causes of the growing depopulation of a country that once surpassed its rival neighbors in the numbers of its people. Less than a century ago the birth rate for France was 30 per thousand of population. When the present war began it was 18, while the death rate was 19.6, thus exceeding the birth rate.

Decrease in population, or failure to gain in numbers, may obviously be due to high mortality as well as to a declining birth rate. The figures just quoted are not such, however, as exhibit an inroad of pestilence and plague. We must seek the explanation in other factors than an undue increment in deaths. According to a competent American statistician,[1] the birth rate has declined in virtually every country of the civilized world during the past fifty years. The untutored reader may imagine, in view of our large increases in population, that such a statement is not applicable to the United States. But if we may believe the figures presented at the last meeting of the American Association for the Advancement of Science, there has been a marked and continuous reduction in the birth rate of this country for a period of years. According to Wilcox, at the beginning of the century there were 976 children under 5 for every thousand women between the ages of 15 and 44, whereas in 1910 the number was only 508 per thousand women at these child-bearing ages.

From a careful statistical analysis of the best data furnished, namely, those of the state of Massachusetts, it is evident that the decline in birth rate in the United States has been, as elsewhere, selective in character. Dublin[1] finds, first, that there has been a continuous decrease in the birth rate during the last forty years; and, secondly, that this decrease has been most marked in the native stock. In 1910, the native stock had a birth rate of 14.9 per thousand; the foreign-born birth rate was 49.1 per thousand. In the same year the native death rate was 16.3 per thousand, while the foreign death rate was only 15.4. There was thus, according to Dublin, an excess of deaths over births corresponding to a net annual loss of a little more than 0.1 per cent. in the native stock, while there was an annual increase of 3.4 per cent. among the foreign-born population. Hence the conclusion that "the race stock which laid the foundations of our institutions during the critical period of our national existence is, in large areas of the country, no longer maintaining itself, and its place is being taken gradually but surely by foreign races which, as we have seen, are reproducing very rapidly."

The facts, then, indicate that a large part of the native stock of this country is not maintaining itself. It is, of course, a dangerous venture to discriminate between the social strata of our society. American public men have given too many indications of the virility and efficiency of sons of lowly origin to justify any class distinctions. We may hesitate to say, with Dublin, that the best blood of America is being thinned out constantly by the exercise of conscious limitations of birth and is being replaced by a stock of a different order. Who shall be the censor of "good blood" in the commonwealth? We may, however, fairly admit that those families in the population which, by economic and social standards, are best able to bear and rear families, fail to produce the number of offspring necessary to maintain a stable population. To the query as to how many children are to be expected in order that the population may suffer no material change, a tentative answer can be framed. Making allowance for deaths in infancy and childhood, for failures to marry or marriage beyond the reproductive period, and for 7 per cent. of sterile marriages, the average number of children that must be born per family is close to four.

The problem of maintaining larger sized families appeals to the state as a sociological study, as a matter of education in the needs of democratic institutions, and as a possible duty of citizenship. For the medical profession, as such, there is a peculiar concern in the relation of motherhood and its burdens to the questions at issue. It may be that with the growing socialization of medicine, greater provision will be made for the education of women in the significance of family life and the better management of mothers in the critical period of childbearing. Every thing that facilitates motherhood may be expected to become, in the long run, an economic asset to the nation. Says Dublin[1]:

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[1] Dublin, L. I.: The Significance of the Declining Birth Rate, Congressional Record, Jan. 11, 1918.

> The bearing and rearing of children is costly, both in energy and in funds, and must act as a check on personal ambition and on the enjoyment of the freedom and pleasures of social life. A family of four children requires all the attention of the thoughtful and capable woman. Her success as a mother will be at the expense, in the majority of cases, of her achievement in other fields. It is not asking too much that such a woman should be favored with the admiration of the community in which she lives and not, as at present, with its commiseration and pity.

DIET AND TUMOR TISSUE GROWTH

Tumors are masses of growing tissue that develop more or less independently of the organs with which they may be most closely affiliated in topographic anatomy. They have therefore been described as autonomous in the sense that "their growth is self regulated without regard for the laws governing the nutritive condition of the host." This need not imply, however, that tumors in no way depend on their hosts, for obviously the pabulum from which a neoplasm is built up must be furnished to it somehow through the surrounding tissues. Whether the constructive units can in any degree be synthesized anew by the tumor cells, whether these cells have unique constructive powers that put them in a class by themselves, or whether they are dependent like other parasites on their host for the special building stones which in ultimate analysis are provided to an organism through the digestion of its foods, are problems of great importance which have repeatedly been debated of late. The questions have, indeed, been complicated rather than simplified by the growing recognition of the complexity of animal food requirements. They have often been summarized in THE JOURNAL so far as the most recent contributions to the science of nutrition justify a definite formulation. Drummond has tersely expressed the requirements in these words: The calorific value of the diet must be sufficient to supply the necessary potential energy. Sufficient nitrogen must be supplied in a form suitable for the building up or repair of tissue. This nitrogen must be supplied in a form which will insure an adequate supply of certain amino-acids which the animal organism is unable to synthesize for its own use. The diet must contain an adequate supply of inorganic salts capable of satisfying the mineral requirements of the animal. Certain substances, probably two in number, the nature of which is at present unknown, but which have been provisionally termed "accessory growth promoting substances," must be present in a sufficient amount.

It is now clearly established, owing especially to the pioneer work of American investigators in this field of research, that shortcomings in any of the items just rehearsed will lead to nutritive disaster of some sort. How will the tumor cells fare when the supply of the fundamentals of nutrition to the body as a whole is curtailed? Will they, too, experience a retardation of growth? Will they respond to inadequacies of the diet more or less promptly than the other tissues of the host by a cessation or inhibition of development? Will they retrograde? Or will they provide de novo whatever they may need by poaching on the surviving neighborhood cells and fluids? It need scarcely be pointed out that these inquiries are significant, because they might point the way to successful treatment of cancer by dietary management.

In the chemical investigation of tumors there has been detected little that indicates any important deviation of the chemical processes of tumors from those of normal cells of similar origin. This is the conclusion of Wells[1] in the latest review of the subject. Likewise, he adds, the chemical composition of tumor tissue resembles closely, on the whole, the composition of related normal tissues. It is hardly to be imagined that the course of chemical changes is greatly different in tumor cells from that in normal cells, in view of the abundant evidence that the metabolic products of tumor cells are identical with those of the cells from which they arose. Thus, metastatic growths of thyroid tissue will produce thyroiodin in any part of the body, liver carcinoma metastases produce bile, tumors from the choroid or from pigmented moles produce melanin, etc. The capacity of tumor cells to produce complicated products of metabolic action specific for the parent cells from which they arose, as illustrated above, indicates beyond question that the course of their chemical activities is very much like that of normal cells.

There is a widely current opinion, based largely on crude clinical observations, that anything which leads to wasting or malnutrition in the host tends to impede the growth of tumor cells. We have in the past referred to experiments on animals with implanted tumors tending to show a modification of the development of the neoplasms by deficient diets which stunt the hosts. These results have been criticized in the sense that it is unjustifiable to conclude that the apparent inhibition is due to the lack of some specific substance in the ration rather than to general malnutrition. Recently Benedict and Rahe[2] have investigated the relation of an absence of vitamins in the diet to the neoplasm. They concluded that tumor cells have no power to synthesize these accessory substances when they are absent from the diet of the host; yet, as they noted, a certain amount of tumor growth occurred, presumably at the expense of the tissues of the animal, even during a vitamin-free regimen. In other words, the tumor cells appear to be as dependent on exogenous supplies of vitamins as are the normal cells of the growing animal.

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[1] Wells, H. G.: Chemical Pathology, Ed. 3, Philadelphia, 1918, p. 492.

[2] Benedict, S. R., and Rahe, A. H.: Jour. Cancer Research, 1917, 2, 159. Vitamins and Tumor Growth, editorial, THE JOURNAL A. M. A., Nov. 3, 1917, p. 1526.

In an elaborate investigation at the Cancer Hospital Research Institute in London, Drummond[3] has given renewed attention to the possible importance of the plane of protein intake of the host, the character and amino-acid content of the protein constituent in its dietary; and the vitamin factors in relation to the growth of implanted tumors. Drummond found that in the event of a deficiency arising in the diet of the host, the tumor, provided it possesses a satisfactory blood supply, will continue to grow, although the host may be quite unable to do so. There is evidence that this proliferation will proceed at the expense of the tissues of the host, until these are no longer able to supply the missing units. When the host is unable to make good the deficiency, by drawing on its own reserves, the rate of tumor proliferation will decrease. There is no evidence that the cells of tumors possess powers of synthetic action which the normal cell of similar type does not possess. With their high growth potential they satisfy their requirement "by enforcing sacrifice of the tissues of the host." Other tissues possessing a high growth or functionating power are known to behave similarly at times; such are the uterus during pregnancy and the mammary gland during lactation. When dietary restrictions necessitate sacrifice, the embryo develops at the cost of other tissues. As Drummond has expressed it, established tumors invariably appear to possess the power of commandeering what part of the food supply of the host they require for their own use. Failing this source of nutrition it is usual to find the tissues of the host sacrificed to no inconsiderable extent in order to provide the requirements of the parasitic cells.

Thus far the dietary investigations have given little hope of alleviating the course of cancer. They are concordant in indicating that only the most drastic dietary restrictions, involving a very serious loss of weight on the part of the host, would have any retarding influence on tumor growth.

YEAST NUTRIENTS IN BREAD MAKING

Two years ago, investigators[4] at the Mellon Institute for Industrial Research announced that the addition to the ingredients of bread of a small amount of a mixture of calcium chlorid, ammonium sulphate and potassium bromate permits the use of approximately one half as much yeast as would otherwise be needed. They stated further that a goodly amount of sugar and flour was saved from unnecessary destruction by the action of yeast alone. As regards quality, texture, color and "bloom" the bread was regarded as superior. The Journal[6] at that time pointed out the advantage of a large annual saving of yeast and sugar, and also that even the relatively small restoration of mineral salts to a bread prepared from a demineralized patent flour was desirable from a medical point of view.

As soon as the salt mixture came into wide commercial use, however, its employment was attacked because of the alleged introduction in bread of "objectionable mineral ingredients." J. P. Street, chief chemist of the Connecticut Agricultural Experiment Station, therefore investigated the "advantages or disadvantages following the use" of a mineral yeast food.[6] In a rather exhaustive report of his examinations, Street[7] apparently demonstrated that the quality of the bread was improved irrespective of the grade of flour employed, and that the bread made with the yeast nutrients did not contain more moisture, as had been charged. Taking up the study of the respective mineral ingredients which composed the yeast food, it became necessary to learn the fate of the mineral salts in the bread and what effect, if any, they had on its wholesomeness. The principal yeast nutrient, calcium sulphate, was found in the finished product in the form of sulphate amounting to 0.135 per cent., or little less than twice the amount present in breads made without the addition of yeast nutrients. Commenting on this phase, Street says that "many of our common foods are deficient in lime, and while the slightly increased content of lime in the yeast nutrient breads has little practical significance, its effects, if any, would be beneficial rather than injurious." In the case of ammonium chlorid, it was found to be mostly utilized by the yeast; the slight amount not so utilized was in a quantity comparable to that present in many of our well known foods. The third active component, potassium bromate, seems, according to the Connecticut investigation, to be converted to potassium bromid in the bread. The amount of bromin—0.58 per hundred thousand parts—present in the form of bromid in bread made by the aid of the mineral salts is ridiculously small, as a large number of common natural food products contain as much or more; hence the physiologic effect is probably nil. As a result of his work, Street agrees with the statements of Winslow and Falk of the Yale Medical School, who state in substance that if the results of this experiment taken as a whole indicate any effect of calcium sulphate, ammonium chlorid and potassium bromid on the digestibility of bread, the effect is a favorable rather than an inhibitory one. "We may safely conclude that the digestibility of bread made with yeast nutrient salts is not affected by the yeast food used in its manufacture."

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[3] Drummond, J. C.: A Comparative Study of Tumor and Normal Tissue Growth, Biochem. Jour., 1917, **11**, 325.

[4] Kohman, H. A.; Hoffman, Charles; Godfrey, T. M.; Asche, L. H., and Blake, A. E.: On the Use of Certain Yeast Nutriments in Bread Making, Jour. Indust. and Engin. Chem., September, 1916, p. 781.

[5] Yeast Nutriments in Bread Making, editorial, The Journal A. M. A., Sept. 30, 1916, p. 1023.

[6] The composition of the patented yeast food is: calcium sulphate, 25; ammonium chlorid, 9.7; potassium bromate, 0.3; sodium chlorid, 25; patent wheat flour, 40.

[7] Street, J. P.: Experiments with Bread, Bull. 200, Conn. Agric. Exper. Sta., 1917, p. 113.

From the standpoint of economics, it is interesting to note that in making 1,000 loaves, weighing $1\frac{1}{2}$ pounds each, and using $4\frac{9}{10}$ pounds of the nutrient salt mixture, there was saved $9\frac{1}{2}$ pounds of flour, $4\frac{1}{5}$ pounds of sugar and $5\frac{4}{5}$ pounds of yeast. Considering the millions of loaves made annually, such a conservation, when economy is national policy, is well worthy of careful attention. While the question is primarily an economic one, it has at the same time an indirect interest for the medical profession, since the possibility of harm to health exists. The work so far done does not indicate any probability of physical harm; at the same time it is well to await further developments before reaching any definite conclusion.

PREOPERATIVE PURGATION

The recent communication by Peet[1] in The Journal, relating to the subject of catharsis before surgical operations, supplements the contentions of Alvarez[2] of the Hooper Foundation for Medical Research that purgation as a routine preoperative procedure should be abolished. In his studies on the intestine, Alvarez had noted that after vigorous catharsis the isolated musculature is no longer as responsive as normally to stimuli and is fatigued with greater readiness. The bowel as a whole may become unduly filled with gas and fluid, the circulation of the intestine somewhat impaired, and the peristalsis deviated from its usual manifestations. In this way it was believed that much of the gas distention, postoperative ileus, and perhaps the nausea and vomiting may be partially accounted for in patients who have undergone surgical operations.

Peet has accentuated the difficulty thus encountered by asking what is expected to be gained through the preparatory evacuation. We suspect that most surgeons would be compelled to answer this query either by a meaningless platitude or by a confession of ignorance. The evidence for a need of or advantage in the customary "emptying" of the bowel by laxatives is, indeed, not easy to find. Sterilization of the interior of the intestine is out of the question as a practical possibility, and there is little indication that anything seriously toxic is removed by such catharsis. On the other hand, it is not unlikely, in view of these studies, that this procedure, attended by fatigue, and often by loss of sleep, is a positive detriment to the patient and an actual cause of some of the familiar postoperative discomfort, if this mild term sufficiently designates the distress referred to. Peet significantly comments on the uneventful convalescence of patients after emergency operations for which no preliminary therapy was instituted.

A further item is worthy of consideration in this connection. Catharsis leads to loss of water and intestinal secretion. If this is not compensated there may be distress from this cause. Crile[3] has lately remarked, in reference to postoperative feeding, that even at this stage of medical knowledge the supreme value of water is not fully appreciated and its administration is often neglected or mismanaged. How much more serious is this incrimination when preoperative losses are freely induced by purgation. At most, therefore, Peet recommends simple enemas as a means of *emptying the bowel before operation.* If his contention is correct that, where the more drastic habitual *procedure is abandoned, postoperative thirst, nausea* and vomiting, abdominal distress and gas pains occur *much less frequently, the appeal to abolish something* sanctioned by custom deserves to be heeded.

Current Comment

THE SALIVA AND DENTAL DECAY

Decay of the teeth offers a serious problem not only to the dentist but also to the physiologist and pathologist, who are primarily interested in the etiologic factors. The microbiology of the mouth cavity has received special attention since the early days of modern bacteriology. The possible relation of the oral micro-organisms, which include the animal protozoan parasites, intermediate forms, such as spirochetes, and true bacteria, to dental caries has often been suggested without being clearly demonstrated. According to Kligler,[4] the early stages of caries are characterized by a decided alteration in the relative abundance of types as they occur in deposits on normal teeth. Three forms, the *B. acidophilus,* the *C. placoides* and the *L. buccalis,* are prominent in the carious enamel deposits. In pulp decay an anaerobic, spore-bearing, putrefactive bacillus, *B. putrificus,* is always prominent. The organisms prevalent in primary enamel decay very actively, ferment the common sugars and bring about comparatively great dissolution of powdered tooth. The organisms in deposits on normal teeth and in the later stages of caries exert either slight effects or none at all in these relations. There is, further, the possibility of a systemic factor predisposing to dental caries. This problem has received some attention from Gies[5] and his collaborators at Columbia University, and they have come to a tentative conclusion: "That the systemic condition of *the individual is an important factor in susceptibility* to dental caries is a conviction that we cannot dismiss.

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[1] Peet, M. M.: Rational Preoperative Treatment with Special Reference to Purgation, The Journal A. M. A., July 20, 1918, p. 175.

[2] Alvarez, W. C., and Taylor, F. B.: Changes in Rhythmicity, Irritability and Tone in the Purged Intestine, Jour. Pharmacol. and Exper. Therap., 1917, **10**, 365. Alvarez, W. C.: Surg. Gynec. and Obst., 1918, **26**, 65.

[3] Crile, G. W.: Dietotherapy, edited by W. E. Fitch, 1918, **3**, 646.

[4] Kligler, I. J.: Chemical Studies of the Relations of Oral Micro-Organisms to Dental Caries, 4, A Biochemical Study and Differentiation *of Oral Bacteria, with Special Reference to Dental Caries,* Jour. Allied Dental Societies, December, 1915, p. 457.

[5] Tr. Dental Soc., State of New York, 1915, p. 161, ff.

Nevertheless, direct external attack upon teeth by micro-organisms appears to be the most important single factor in the carious processes."[6] A third possibility in the etiology of dental caries lies in the saliva. This has been the subject of vigorous debate in the past few years. In 1915, Marshall[7] proposed what he termed a "salivary factor" as an index of immunity from caries. It represented a ratio between the mathematical expression for the total neutralizing power of "normal resting" saliva and normal "activated" saliva —that provoked by special stimulation—in the same individual. Assuming that the saliva is amphoteric, Marshall concluded that for it to be a factor in protecting the teeth it must neutralize either acid or alkaline substances as taken into the mouth, and that it is the degree of this power to maintain a neutrality in the mouth that is indicative of the susceptibility to caries. This hypothesis has been the subject of vigorous differences of opinion.[8] The tendency has been to discredit the value of any such salivary factor. The most recent investigators[9] of the problem at the Forsyth Dental Infirmary for Children, Boston, have demonstrated anew that the saliva of persons with teeth immune to decay varies, as does also the saliva of persons with carious teeth; that saliva may neutralize substances taken into the mouth and that the average immune mouth has the greater power of neutralization; but the ratio of resting and activated saliva in immune mouths does not vary enough from that of carious mouths to prove that this ratio is indicative of the production and maintenance of immunity from caries in any individual. Evidently other directions must be sought for new attacks on an ever present problem.

THE INTERMEDIATE HOST OF THE TYPHOID BACILLUS

Last week in Tonics and Sedatives—probably where the matter belongs—appeared part of a column of editorial comment called "Today," written by Arthur Brisbane of the Hearst papers. This column deals with simple and clearly understood matters like government ownership, the proper development of an aeroplane program and the meaning of Prussian peace talk. As a sort of climax were the few paragraphs on the eating of horse meat which the Tonics and Sedatives reprinted. After confounding a "scientist," who was said to have declared that there is no reason for not eating horse meat, by telling him that he was "mistaken," the omniscient one continues: "The civilized world as a whole opposes the use of horseflesh, and there is usually a substantial reason for a feeling so widespread. The typhoid germ develops in the horse, not elsewhere. Man can get typhoid only from the germ that has lived in the horse's body." It is hardly necessary to state that not one of these statements is approximately correct, that no single case of typhoid has ever been traced to infection from the horse, and that there is no evidence whatsoever that the typhoid germ must pass a necessary stage of its development in that animal. The only experiments of which we are aware that bear on this matter are those in which calves were fed large numbers of typhoid bacilli and were entirely unaffected, the bacteria dying out promptly in the alimentary tract of these animals. Reckless misinformation may do harm if confined to unverifiable politics; but if allowed to display itself in the field of natural science, it can only raise ungodly laughter.

UREA CONCENTRATION IN THE TOXEMIAS OF PREGNANCY

It requires more than a slight degree of emboldening confidence to induce even the accomplished investigator to venture into the domain of hypothesis regarding that confusing phenomenon, the toxemia of pregnancy. There is undoubtedly a severe intoxication involved; there is much in the way of chemical evidence as well as symptomatic indications to relate the disorder to a uremia with renal disturbance and impaired excretory functions; and the relief that so often follows removal of the uterine contents strongly suggests the participation of either placenta or fetus or both in the etiology. However, the problem is still in a stage in which more facts, and particularly more accurate as well as new ones, are needed. A contribution in this direction has lately been furnished by Hammett[1] at the Harvard Medical School through the demonstration, in a liberal number of cases, that the placentas from women suffering from a toxemia of pregnancy are generally higher in urea content than are the placentas from women whose course of gestation has been normal. It is unlikely that this represents a purely local accumulation of urea, because the extremely ready diffusion and distribution of urea throughout the body has been clearly demonstrated. The results do argue, however, for a generally increased concentration of urea in the toxemias of pregnancy. It is plain, says Hammett, that they are accompanied by a severe disturbance of nitrogen metabolism, the exact foci of which are yet to be discovered, and which results in an increased urea content of the placenta and in all probability of the body as a whole.

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[6] Gies, W. J.: Chemical Studies of the Relations of Oral Micro-Organisms to Dental Caries, 6, *Retrospect and Prospect*, Jour. Allied Dental Societies, December, 1915, p. 464.

[7] Marshall, J. A.: The Neutralizing Power of Saliva in Its Relation to Dental Caries, Am. Jour. Physiol., 1915, **36**, 260.

[8] Some of these are referred to in the paper by Gies and collaborators: Jour. Allied Dental Societies, 1917, **12**, 212.

[9] Howe, P. R., and Keniston, M. R.: The Salivary Factor in Relation to Dental Caries, Am. Jour. Physiol., 1918, **46**, 28.

[1] Hammett, F. S.: The Urea Content of Placentas from Normal and Toxemic Pregnancies, Jour. Biol. Chem., 1918, **34**, 515.

To Bridge Defects in Nerves.—F. Cahen has had good results from utilizing a sensory nerve to bridge the gap in a nerve. The success was complete in two of four cases in which he thus bridged a 10 or 12 cm. defect in the lower ulnar nerve by severing the cutaneous nerve, opposite the lower stump of the ulnar nerve, and fastening the central end of the cutaneous to this lower stump, and then fastening with a few stitches the central stump of the ulnar to the trunk of the cutaneous. In six months the functions of the ulnar nerve were almost completely restored. He thinks that the results would have been equally brilliant in all the cases if he had been more careful to cut the stumps up into sound tissue. (From summary in the *Correspondenz-Blatt* of his article in the *Zentralblatt für Chirurgie*, 1917, No. 35.)

Medical Mobilization and the War

Report on Trench Fever

Dr. Alfred E. Shipley, secretary of the medical advisory committee of the American Red Cross, writes that a cable from Dr. Alexander Lambert gives the following information regarding the trench fever committee: The "trench fever committee headed by Major Richard P. Strong have completed their investigation, and demonstrated beyond facts published in February that trench fever is caused by a resistant filterable virus. Louse can transmit fever by bite alone and also artificially by rubbing into cutaneous abrasions excrement of louse. Virus present not only blood plasma, but also in urine, and sometimes sputum or saliva of trench fever patients. Louse need remain on man but short time and patient come down with disease long after free from lice." The full report will be published later.

Further Facts Regarding the Death of Lieut. A. P. H. Sage

The Journal published on June 29 a notice of the death of Lieut. A. P. H. Sage, Memphis, Tenn., while on duty with the British field ambulance in France. The *Lancet* for June 29, just received, publishes the death notice of Capt. E. E. Meek, C. A. M. C., and in describing his death states:

> "He had been granted transfer to England on account of health and on urgent personal grounds when an incendiary bomb from enemy aircraft struck the hospital building in which he was working. The operating theater was completely demolished and Captain Meek was killed along with Lieut. A. P. H. Sage, M. R. C. (U. S. A.), who was assisting him, as well as the nursing sisters, theater orderlies, and stretcher-bearers. The wreckage burst into flames, but casualties were limited to those caused directly by the bombs."

Women Health Officers for Duty in Munitions Plants

The War Department authorizes the following statement from the Ordnance Department: Women health officers, whose duty will be to see that the thousands of women workers in munitions plants are kept healthy and their output of war materials thus maintained at the peak of production, are to be trained under the direction of the women's division of the industrial service section of the Army Ordnance Department. The work to be done is along entirely new lines. Many of the plants already have physicians and nurses to care for employees when they are ill, but they do not have health experts with a knowledge of the psychology of women workers to do constructive, preventive health work among the women.

Statistics on Medical Teaching and Students

The deans of the well recognized medical schools have been requested to send to the Surgeon-General lists of all teachers appointed in the schools for the session 1918-1919, indicating those considered essential for effective teaching. It is stated that until more definite plans are announced the teachers thus indicated will be included in the reserve list, the members of which, if in the Medical Reserve Corps, will not be called into active service without personal approval by the Personnel Division. Statistics relative to age, degree in medicine, year of graduation, rank in the Army or other government service, are to be furnished. The deans are also instructed to furnish information relative to the number of teachers in each department and the number really considered essential for each department; also a statement of the principles guiding the authorities in their decision as to the choice of essential teachers.

The deans have also been instructed to send to the Surgeon-General's Office before October 30 a list of all students in the schools at that time relative to their status in the Medical Enlisted Reserve Corps or nonenlistment, and whether or not any conditions are standing against individual students. Another report is to be asked for February 10. It is desired not to leave the intellectually incapable or indolent student on inactive status until the end of the school year.

Medical Meetings at Camp MacArthur

Lieut.-Col. A. W. Williams, M. C., U. S. Army, assigned as division surgeon of the Seventh Division at Camp MacArthur, Texas, arranged for a series of medical officers' meetings to be held regularly near the officers' quarters at the base hospital. Programs were constructed that the various medical officers might gain an insight into the medical work of the entire camp. The program for recent meetings has included the following papers: "Tuberculosis Examination Methods in the Army," Major I. S. Kahn, M. R. C.; "War Neuroses," Major Frank E. Leslie, M. R. C.; "Experiences of a Medical Supply Officer in the French Army," Lieutenant Picard; "Abdominal Surgery," Major Howard, M. R. C.; "Demonstration of Bárány Tests for Aviators," Captain Burns, M. R. C.; "Lobar Pneumonia," Lieut. Nathan S. Schiff, M. R. C.; "Medical Treatment of Gastric Ulcer," Major Charles G. Lucas, M. R. C.; "Meningitis," Major Leon S. Medalia, M. R. C.; "Carrel-Dakin Treatment of Wounds," Lieut. Harold B. Markham, M. R. C.; "Gases Used in Warfare and How to Combat Them," Captain Thompson, and "Report of the 1918 Meeting of the Americn Medical Association," Major Campbell.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES*

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending July 12, 1918

		Last Week
1. ANNUAL ADMISSION RATE PER 1,000 (disease only):		
All Troops	992.7	947.6
Divisional Camps	995.0	985.5
Cantonments	1,064.4	926.0
Departmental and Other Troops	966.76	952.5
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:		
All Troops	38.74	37.8
Divisional Camps	41.3	36.5
Cantonments	40.7	37.7
Departmental and Other Troops	37.35	38.9
3. ANNUAL DEATH RATE PER 1,000 (disease only):		
All Troops	3.01	3.19
Divisional Camps	2.64	2.39
Cantonments	3.40	3.87
Departmental and Other Troops	2.50	2.72

*Including Porto Rico.

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending July 12, 1918	Departmental and Other Troops, Week Ending July 12, 1918	Divisional Camps, Week Ending July 12, 1918	Cantonments, Week Ending July 12, 1918	Expeditionary Forces, Week Ending July 4, 1918
Pneumonia	6.57	4.8	7.94	7 73	9.02
Dysentery	0.73	0.73	1.7	0 34	0.22
Malaria	7.3	4.38	13.6	7.22	0.9
Venereal	145.09	168.1	105.5	151.68	24.08
Paratyphoid	0.03	0.0	0.0	0.08	0.0
Typhoid	0.4	0.83	0.19	0.17	0.28
Measles	30.22	16.7	39.1	38.77	10.67
Meningitis	0.66	0.52	0.19	1.02	0.85
Scarlet fever	1.76	1.88	0.56	2.29	2.21

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in The Journal, June 1, 22 and 29, and July 13 and 20.

ALABAMA

Anniston—Leyden, H. A.
Athens—Anderson, W. H.
King, C. O.
Birmingham—Gaston, C. D.
Lowrey, J. M.
Mason, E. M.
Daleville—Windham, L. A.
Ensley—Gaston, A. L.
Geneva—Vaughan, A. E.
Jasper—Shepherd, R. H.
Lineville—Barfield, J. M.
Lisman—Moore, W. N.
Mobile—Gaines, M. T.
Mount Vernon—Marshall, B. E.
Plantersville—Pickering, A. B.
Prattville—Smith, M. D.
Talledega—Salter, C. L.

ARIZONA

Clifton—McPheeters, E. R.
Flagstaff—Manning, G. F., Jr.
Fort Defiance—Monk, J. A.
Glove—Wales, J. L.

ARKANSAS

Arkadelphia—Wallis, C.
Hot Springs—Sanders, T. E.
Melwood—King, J. A.

CALIFORNIA

Berkeley—Cheney, M. C.
Brea—Davis, W. W.
Calexico—Sims, P. N.
Chico—Enloe, N. T.
Dorris—Atkinson, A. A.
Eureka—Chain, J. N.
Pine, J. W.
Fresno—Collins, C. D.
Mitchell, C. O.
Pettis, J. H.
Williams, J. C.
Glendale—Flint, J. L. F.
Long Beach—Buell, A. W.
Keller, W. F.
Los Angeles—Biggs, E. L.
Cleeves, M.
Hall, E. H.
Hartford, W. S.

Los Angeles—Miller, U. G.
Moore, A. W.
Myers, T. C.
Robinson, T. C.
Ronan, R. R.
Tebbetts, J. H.
Wight, T. H. T.
Monterey—M'Cauley, M.
Oakland—Koford, H.
Orange—Bradshaw, A. F.
Pomona—Swindt, J. K.
A. F.
m, J. G.
San Francisco—Baronides, R. R.
Hopkins, E. K.
Eaves, J.
Seaforth, E. W.
Seligman, L. L.
Thibodeaux, J. A.
Wilcox, R. W.
San Jose—Atkins, S. M.
Baker, M. D.
Barry, G. L.
Beattie, J. I.
Wise, P. L.
Santa Ana—Brother, H. N.
Santa Maria—Coblentz, L. B.
Stockton—Hammond, R. R.
Wagner—Graham, L.
Whittier—Miller, B. F.

COLORADO

Boulder—Gillaspie, C.
Canon City—Little, W. T.
Colona—Barclay, H. A.
Colorado Springs—Bortree, L. W.
Denver—Cooper, H. S.
Knee, N. H.
McCarr ll, J.
Philpott, W. A.
Wade, J. H.
Wilcox, H. W.
J. H.
ueblo—Woodbridge,
ibert—Bensinger, C.
inidad—Espey, J. G.

CONNECTICUT

npton—Marsh, A. D.
tford, Cogswell, E. S.
Purinton, C. O.
lletown—Melvin, G. M.
Haven—Blake, E. M.
heahan, W. L.

TRICT OF COLUMBIA

ngton—Adams, F. D.
umnall, J. R.
hnson, L. A.
tcham, C. S.

FLORIDA

ille—Bowen, F. J.
lm Beach—Peck, L. A.

GEORGIA

—Allen, H. B.
Holliday, J. C.
Carter, H. G.

Chicago—O'Connor, W. A.
Pearlman, S.
Quitmeyer, J. C.
Roche, R. A.
Sarma, P. J.
Scholter, E. A. W.
Seyl, H. H.
Shackleton, W. E.
Walk, F. D.
Watterson, W. H.
Wilson, J. W.
Decatur—Taylor, C. M.
East Moline—Johnson, G. F.
East St. Louis—McNary, W. F.
Fairfield—Murphy, L. J.
Fairview—Crouch, W. L.
Farina—Bassett, L. C.
Farmingdale—Lutyens, H. E.
Fiott—Taylor, A. B.
Granville—Wilson, H. M.
Harvel—Kilton, W. B.
Joliet—Chmelik, F. J.
Kankakee—Badger, P. R.
Lanark—Hendricks, E. L.
Latham—Pope, H. O.
Littleton—Justus, W. F.
Mackinaw—Fast, H. DeW.
Marseilles—Weirick, A. J.
Maywood—Coffman, S. W.
Melvin—Boshel, H. N.
Moline—Freeman, D. B.
Ringnell, F. O.
Montrose—Kempff, H. W.
Morton—Goodyear, H. M.
Oak Park—Vanderslice, J. W.
Pana—Burgess, W.
Eberspaacher, F. J.
Peoria—Bacon, J. H.
Causey, F. A.
Levitin, E. Z.
Page—T. H.
Pinckneyville—Mead, D. O.
Ridgefarm—Dice, H. F.
Rockford—Green, J. A.
Moore, H. F.
Pearman, A.
Sullivan, H. A.
Rock Island—Comegys, J. P.
Mueller, A. N.
Sandwich—Dudley, E. F.
Springfield—Aschauer, A. G.
Deal, J. F.
Defreitas, I. A.
Herndon, R. F.
—Van Epps, H. E.
Ingram, G. R.
Tuscola—
I. C.

INDIANA

Anderson—Armington,
Ashley—Darnelle, T. E.
Aurora—Marshall, C. C.
Bicknell—Dees, H. E.
Bloomington—Kentling, J.
Carmel—Cooper, R. A.
Claypool—Landis, W. C.
Columbus—Graham, P. C.
Corydon—Sonne, I. J.
Crawfordsville—Schenck, F. O.
Cumberland—Young, J. B.
East Chicago—Golden, S. S.
Economy—Loops, A. L.
Elwood—Shewalter, G. M.
Gary—Schaible, E. L.
Gragville—Somers, L. E.
Greenwood—Good, D. R.
Hammond—Lloyd, A. W.
Melton, O. O.
Hartford City—Sellers, C. A.
Huntington—Dippell, E. T.
apolis—Johnson, W. F.
rvis, F. H.
art, W. A.
H. A.
nd, C. R.
H. A.
isher, M. F.
iff, L. H.
A. A.
E. K.
D.
C.
B. J.
S.
e, J. S.
res, E. M.
B.
S.

Burt—Clapsaddle, J. G.
Centerville—James, C. S.
Carinda—Matthews, R. J.
Council Bluffs—Fonda, J. W.
Davenport—Cantwell, J. D.
Des Moines—Carey, L. O.
Dickens—Bruce, J. H.
Dubuque—Kearny, C. A.
Fort Dodge—Mulroney, C. H.
Schultze, A. A.
Fort Madison—Bess, T. F. E.
Granby—Ambrose, E. C.
Granges—Smith, C. G.
Greenville—Thrash, J. A.
Iowa City—Diven, W.
Morton, M. T.
Knoxville—Wright, J. R.
LaFayette—Clark, L. O.
Lewis—Murphy, W. W.
Logan—Kennedy, C. S.
Milton—Howe, L. C.
Muscatine—Johnston, W. H.
Pilot Mound—Shane, R. S.
Rolfe—Hollis, E. L.
Sioux City—Jepson, W.
Koch, G. W.
White, W. M.
Waterloo—Jaynes, E. T.

KANSAS

Burlingame—Naylor, N. E.
Crestline—Iliff, W. H.
Englewood—Pierce, L. J.
Garden City—Edwards, J. B.
Great Bend—Nixon, W. A.
Greenfield—Gibbs, C. M.
Kansas City—Gates, W. J.
Kinley, C. E.
Lewis, L. C.
Quinter—Rinehart, J. H.
Seneca—Snyder, H. G.
Shawnee—Thomas, B. D.
Stafford—Butler, W. L.
Topeka—Stewart, R. B.
Valley Falls—Marks, J. M.
White Cloud—Austin, F. J.
Wichita—Crittenden, A. L.
Schlegel, E. H.
Winfield—Cave, F. C.

KENTUCKY

Blaine—Osborn, H. C.
Bowling Green—Donnelly, A. D.
Covington—Noble, W. A.
Cynthiana—Wyles, J. P.
Ekron—Stith, S. H.
Fort Thomas—Hohnstedt, J. H.
Lacenter—Martin, J. W.
Lexington—Mitchell, E. W.
Louisville—Pottinger, S. L.
Paducah—Washburn, B. A.
Philpot—Kirk, J. A.
Richmond—
rahams, D. J.

LOUISIANA

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Lake Charles—Iles, D. C.
Merryville—Frazar, F. R.
New Orleans—Blackshear, S. M.
Bordenave, C. J.
Ruston—White, S. L.

MAINE

Augusta—Mann, L. L.
McKay, R. L.
Bangor—O'Brien, C. R.
Boothbay Harbor—Barrows, H. C.
Norway—Trufant, L. H.

MARYLAND

Baltimore—Gaddess, H. W.
Huck, J. G.

MASSACHUSETTS

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Boston—Brearton, E. J.
Darling, C. B.
Paul, B. D.
Simmons, N. E.
Spaulding, J. D.
Tobey, G. L., Jr.
Vamvas, A. D.
Vose, R. H.
Brookline—Townsend, D.
Chelsea—Gilbert, M. A.
Marnoy, S. L.
Cliftondale—Harris, L. W.
Fairhaven—Thompson, C. E. P.
Fall River—Lebouef, J. S.
Foxboro—Bunnell, G. L.
Holbrook—Crawford, F. W.
Holyoke—Hussey, E. J.
Knowlton, E. A.
Lowell—Alling, M. L.
Atkinson, F. C.
Tabor, E. O.
Norwood—Kaufman, M. F.
Somerville—Pillsbury, E. D.
Springfield—Gilchrist, J. M.
Holden, N.
Merritt, R. E.
Schillmander, C. A.
esley—Anthony, G. C. H.
oleman, D. B.
nwood, F. A.
wall, E. H.
West Somerville—Ruston, W. D.
Weymouth—Libby, J. H.
Winchester—Maynard, H. E.
Worcester—Albee, G. M.
Hill, G. H.

MICHIGAN

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Darnall, J. R.
Cadillac—Oden, R. J. E.
Columbiaville—Chapin, C. D.
Detroit—Mayhew, D. P.
McAlpin, A. D.
Ormond, J. K.
Rosen, R.
Schaller, G. J.
Stephenson, F. T. F.
Harbor Springs—Miller, R. R.
Muskegon—Morford, F. N.
Grand Rapids—Peppler, J. F.
Urquhart, R. T.
St. Johns—Buck, R. C.

MINNESOTA

Altura—McGuire, C. J.
Atwater—Anderson, L. W.
Blue Earth—Chambers, W. C.
Brainard—Nelson, D. E.
Buhl—Johnson, S. M.
Chatfield—Woodruff, C. W.
Crockston—Daniels, W. H.
Deer Creek—Roskilly, G. C. P.
Ely—Ayres, G. T.
Grand Rapids—Hursh, M. M.
Mankato—Denman, A. V.
Minneapolis—Lynch, M. J.
Mann, A. T.
Nelson, O. E.
Moorhead—Briggs, F. W.
Owatonna—Andrist, J. W.
Pine City—Tofte, A. A.
Red Wing—Smith, M. W.
Spring Valley—Johnson, C. H.
St. Paul—Ball, C. R.
Welch, M. C.
Colvin, A. R.
Maloney, T. J.
Turnacliff, D. D.
Waseca—Rudolf, A. J.

MISSISSIPPI

Abey Como—Hooper, E. L.
Arm—Armstrong, M. C.
Brookhaven—Arrington, O. N.
Crystal Springs—Gibson, J. S.
Greenville—Montgomery, D. C.
Hattiesburg—Champenois, F.
Jackson—Plunkett, B. J.
Lambert—Crothers, V. M.
Leland—Gauden, H. D.
Meridian—Bailey, J. T.
rdeaux, T. D.
T. J.
Houston
Salem—Rudd, W. E.

MISSOURI

Ashley—Hereford, R. G.
Barry—Alton, G. P.
Bevier—Gronoway, T. P.
Blackwater—Abney, W. L.
Buffalo—Hudson, F. A.
Bunker—Simmons, C. C.
Carterville—O'Kelley, F. M.
Clinton—Beaty, J. G.
Flat River—Cecil, G. E.
Fulton—McCubbin, J. B.
Grand Pass—Coon, E. H.
Hannibal—O'Keefe, C. D.
Hopkins—Maxwell, H. S.
Independence—Twyman, G. T.
Joplin—Chenoweth, J. A.
Kansas City—Cantrell, C. D.
Counsell, C. M.
Lichtenberg, J. S.
Owens, J. L.
Rhodes, C. C.
Roberts, J. L.
Ruhl, I. E.
Van Eman, F. T.
Wehr, C. W.
Weinberg, A.
King City—Blacklock, D. E.
Kirkwood—Werth, D. S.
Linn Creek—Moulder, J. D.
Nelson—Thompson, J. E.
Oakridge—Statler, W. K.
Odessa—Moennighoff, F. J.
Orrick—Kirkham, A.
Rayville—Gaines, G. W.
Sedalia—Ferguson, W. J.
Springfield—Bradley, E. H.
James, E. F.
St. Joseph—Timerman, A. R.
St. Louis—Altheide, C. H.
Esselbruegge, F. C.
Gorin, M. G.
Hale, T. H.
Haynes, F. W.
Jacobi, F. E.
Kring, E. V.
Lund, H. G.
Missimore, L. E.
Pfeffer,

St. Louis—Thompson, A. M.
Upshaw, O. T.
Whitaker, G. W.
Wiesner, B. J.
Wobus, R. E.
Sturgeon—McComas, A. R.
Tarkio—Benham, C. E.

MONTANA

Big Timber—Claiborn, D. R.
Crow Agency—Townsend, B. I.
Dillon—MacMilla, H. A.
Roundup—Welsh, T. W.
Sheridan—Sutherland, E. L.
Stevensville—Fales, L. H.
Washu—Beltzer, C. E.

NEBRASKA

Aurora—Haughey, I. W.
Belgrade—Delany, L. A.
Carleton—Westerzoff, J. G. W.
Fairmount—Ashby, A. A.
Fremont—Buchanan, A. E.
Rathbun, G. H.
Haigler—Doods, R.
Hastings—Calbreath, C. B.
Hamil, E. B.
Omaha—Barnes, E. M.
Haney, W. P.
Keugle, F. H.
Porter, E. R.
[illegible] T. J.

NEVADA

Tonopah—Cunningham, J. R.

NEW HAMPSHIRE

Concord—Wallace, L. O. S.
Dover—Bennett, R. J.
Franconia—Johnson, H. L.
Nashua—Daudelin, A.
Rochester—Morin, J. J.

NEW JERSEY

Bogota—McFeely, P. R.
Boonton—Hance, B. M.
East Orange—Neare, C. R.
Hoboken—Arlitz, W. J.
[illegible] L.
R. H.
[illegible]
Newark—Harden, A. S.
Markens, E. W.
Preston, P. B.
Quinby, W. O'G.
Sutphen, C. E.
Tansey, W. A. A.
Paterson—Atwood, E. A.
McDede, F. F.
Plainfield—Pratt, C. H.
Probasco, N. H.
Trenton—Williams, H. D.
Whippany—McCormack, W. G.

NEW MEXICO

Hurley—Kindall, C. E.
Roswell—Vonalmen, S. G.
Silver City—Davis, J. R.

NEW YORK

[illegible]
J. B.
Brooklyn—Beatty, G. W.
Briggs, R. T.
Eis, B. M.
Holly, I. M.
Howard, T.
Levine, M. R.
O'Connell, W. J.
Buffalo—Clarke, E. A. D.
O'Gorman, F. M.
Sharp, E. A.
Short, J. E.
Wright, T.
Collins—Hadly, R. V. N.
Deposit—Axtell, C. M.
Garden City, L. I.—Woodword, J. T.
Hackensack—MacDonald, H. G.
Long Island—Wheelock, W. E.
Middletown—Schmitz, W. A.
New York—Berry, C. N.
Bullen, B. C.
Bunzel, E. E.
Carr, F. C.
Carter, R. F.
Cartwright, H. T.
Grabenstein, J.
Graham, J. R.
Jones, R. M.
Kulkin, S.
Laverty, G. L.
Lubin, E. K.
Marvel, N. C.
McTague, W. F.
Moriarty, R. W.
Neergaard, A. E.
Nelson, F. L.
Ray, E. T.
Roof, S. W.
Shapiro, S.
New York—Siegler, S. L.
Slattery, G. N.
Stein, S.
Sullivan, E. S.
Weingart, A. J.
West, R.
Wurthmann, J. W.
New Rochelle—Combes, F. C., Jr.
Olean—Atkins, L. J.
Ossining—Bricant, C. L.
Otto—Campbell, H. S.
Ravena—Post, R. B.
Rochester—Atwater, D. H.
Bullen, S. S.
Sayres, C. O.
Sperry, H. E.
[illegible] H. S.
[illegible] T.
Troy—Stalter, G. R.
Wayne—Wright, A. F.
Willard—Priestman, G.
Yonkers—Paterson, D. C.

NORTH CAROLINA

Asheville—Williams, J. R.
Canton—Russell, J. M.
Clemmons—Hege, J. R.
Goldsboro—Stresnider, C. F.
Marietta—Hayes, A. H.
Rockwell—Earnhardt, J. M.
Warrenton—Rodgers, W. D., Jr.

NORTH DAKOTA

Bismarck—Fisher, A. M.
Schipper, L. A.
Grand Forks—Fisher, L. F.

OHIO

[illegible] J. T.
[illegible] E. H.
M.
[illegible]
Dawe, C. W.
Faller, A.
Iglauer, S.
Jenkins, W. I.
Kramer, S. P.
Reed, R. W.
Schell, H. F.
Wilson, M. E.
Cleveland—Feil, A. H.
Savage, H. J.
Selman, J. J.
Columbus—Bay, W. F.
Meek, G. T.
Steinfeld, A. M.
Columbus Grove—Morris, F.
Dayton—Brower, A. B.
Chynoweth, W. R.
Courtright, L. T.
Gallipolis—Holzer, C. E.
Hamilton—Skinner, D. M.
Johnston—Burner, G. W.
Korwood—Tidball, C. W.
Lancaster—Caldwell, S. C.
Lima—Curtiss, E. J.
Yingling, E. C.
Linden Heights—Valentine, C. M.
Lisbon—Maxwell, H. S.
Marion—Sawyer, C. W.
Mount Vernon—Blair, H. W.
Toledo—Cary, W.
King, C. R.
Van Wert—Good, B. L.
Washington—Demuth, W. F.
West Cairo—Hauman, L. H.

OKLAHOMA

Albion—Wright, P. E.
Ada—King, R. F.
Blanchard—Shi, T. P.
Cheyenne—Wallace, G. H.
Clinton—McBurney, C. H.
Cordell—Bungardt, A. H.
El Paso—Catto, W. B.
Fairfax—Bagby, E. L.
Fairview—Anderson, J. V.
Fletcher—Ashley, J.
Guthrie—Lovelady, B.
Henryetta—Ballinger, I. W.
Hobart—Leverton, W. R.
Hominy—Mullins, I.
Hugo—Harris, G. E.
Humphreys—Lowe, J. T.
Jenks—Harris, B.
Ketchum—Prowell, J. W.
Kinta—Johnson, E.
Kiowa—Johnson, C. A.
McAlester—Kilpatrick, G. A.
Williams, C. O.
Millerton—Moseley, F.
Minco—Hune, R. S.
Muldrow—Breedlove, J. C.
Norman—Ellison, G.
Nowata—Allen, R. I.
Oklahoma City—Alford, J. M.
Davis, E. F.
Day, C. R.
Bradley, H. C.
Fields, C. H.
Pine, J. S.
Postelle, J. M.
White, A. W.
Paoli—Lain, E. H.
Parum—Farris, R. C.
Pauls Valley—Shannon, J. B.
Pawnee—Weller, R. E.
Pond Creek—Enos, L.
Purcell—McCurdy, T. C.
Quinlan—Eilers, P. G.
Quinton—Chambers, A. G. M.
Sallisaw—Jones, S. B.
Sand Springs—Calhoun, C. E.
Sapulpa—McAllister, J. S.
Wetzel, G. H.
Shattuck—Newman, O. C.
Rollo, J. W.
Stilwell—Walters, C. A.
Strong City—Russell, B. W.
Sulphur—Davis, P. R.
Supply—Westfall, G. A.
Tulsa—Green, R. R.
Wayne—Dawson, O. O.
Waynoka—Gregg, O. R.
Wirt—Davis, P. R.
Woodward—Davis, C. E.
Yale—Stuck, L. A.

OREGON

Cloverdale—Shearer, J. B.
Portland—Johnston, W.

PENNSYLVANIA

Allentown—Sharp, J. C.
Aspinwall—Ross, W. G.
Avoca—Druffner, L. C.
[illegible] C. E.
J. P.
L.
R.
r.
R.
Lock No. 4—Sickman, A. S.
Mahanoy City—Hensyl, G. S.
Mapleton Depot—Campbell, M. D.
McKeesport—Steele, T. A.
Nanty Glo—Barr, J. W.
Philadelphia—Bennett, W. A.
Foltz, J. C.
Hartwell, J. H.
Johnson, W. C.
Kohn, L. W.
Malondy, J. A.
McMaster, P. D.
Ritzman, R. R.
Whiteway, H. M.
Pittsburgh—Brenneman, R. E.
Evans, T., Jr.
Glynn, W. H.
Kelsey, J. S., Jr.
Langley, C. C.
Mitchell, J. W.
Owens, J. R.
Patterson, H. B.
Stover, M. E.
Reading—Wenner, A. K.
Sayre—McNamara, J. J.
Scranton—Reese, W. S.
Shamokin—Malone, C. M.
Sharpsburg—Stanton, C. C.
Steelton—Gallagher, J. L.
St. Mary's—Black, W. M.
St. Peters—Smith, H. T.
St. Petersburg—Wood, A. J.
Sweet Valley—Rummage, C. L.
Sunbury—Cooper, E. B.
[illegible] J. B.
West Philadelphia — Humphreys, F. R.
Whiteley—Core, A. R.
Wilkes Barre—Fox, C. C.
Wivell, R. F.
Wyomissing—Lerch, C. E.

RHODE ISLAND

Providence—Hawkes, C. E.

SOUTH CAROLINA

Chester—Abell, R. E.
Malone, H. B.
Greenville—Brown, A. S.
Lancaster—Brown, R. C.
Poovey, G. W.
Rock Hill—Bigger, D. A.
Spartanburg—Wilson, G. D.
Starr—Land, J. N.
St. George—Behling, A. S.
Sumter—Littlejohn, T. R.
Weinberg, M.
Union—McElroy, A. P.

SOUTH DAKOTA

Aberdeen—Devereaux, T. J.
Whiteside, J. D.
Canton—Parke, L. L.
Frankfort—Gueffroy, H. A.
Kimball—Stewart, F. H.
Mitchell—Bobb, B. A.
Redfield—Chicester, J. G.
Sioux Falls—Keller, W. F.
Perkins, E. L.
Putnam, F. I.
Vandemark, G. E.
Veblen—Senescoll, C. R.
Wessington—McKie, J. F.
Yorkton—Morehause, E. M.

TENNESSEE

Alcoa—Bishop, W. A.
[illegible] F. B.
M.
Gleason—Jeter, J. E.
Hampton—Shoun, J. B.
Jasper—Price, J. A.
Nashville—Haiman, J. A.
Pikesville—Greer, D. A.
Riceville—Cannon, M. E.
Sparta—Richards, A. F.
Tate—Idol, J. H.
Watanga—Wallace, J. W.

TEXAS

Alda—Carroll, J. D.
Amarillo—Askew, W. L.
Ashutar—Bradbrook, J. A.
Belton—Denman, J. A.
[illegible] H.
[illegible] W. C.
Fulshear—Harris, R. D.
Harlington—Hutter, C. G.
Houston—Dawes, R.
Howard, A. P.
Kyle, J. A.
Morris, R. T.
Parker, G. D.
Scott, J. W.
Stokes, M. B.
Lampasas—Landrum, M. M.
LaPorte—Griffith, C. W.
Pecos—Camp, J.
Port Arthur—Autrey, A. R.
Rockdale—Sessions, I. P.
Rosenberg—Balke, J. W.
San Antonio—Johnston, L. S.
Sykes, E. M.
Taylor, C. W.
Shalowater—Bounds, R. W.
Strawn—Pedigo, W. S.
Texarkana—Smith, J. K.
Thorndale—Lawrence, E. L.
Village Mills—Anderson, W. W.
Waxahachie—Tenery, W. C.

UTAH

Heber—Dannenberg, B. A.
Salt Lake City—Irvine, A. R.
Pace, G. H.
Pugh, W.

VERMONT

Barre—Stewart, J. W.
Burlington—Perkins, C. N.
Gate City—Corns, E. M.
Rutland—Crahan, H. L.
Waitefield—Howard W. J.
Woodstock—Kidder C. W.

VIRGINIA

Norfolk—Horton A. G.
Northfield—Hurley, W. H.
Temperanceville—Nevitte, R. R.

WASHINGTON

[illegible] J. L.
R. E.
E.
[illegible]—Steel, W. E.
Seattle—Beckett, E. E.
Booth, J. R.
Mattice, A. T.
Wilson, C. E.
Tacoma—Steagall, J. R.
Walla Walla—Montgomery, C. E.

WEST VIRGIINIA

Charleston—Young, H. H.
Clarksburg—Patne, J. B.
Fairmont—Causey, H. D.
Follansbee—Crawford, W. S.
Huntington—Heald, W. W.
Shafer, E. E.
Whittaker, A. H.
Yost, G.
Kenova—Goff, T. N.
Parkersburg—Griffith, O. H.
Harris, T. L.
[illegible]
B. L.
H.

WISCONSIN

Ashland—Rohow, F. M.
Beloit—Maurer, H. C.
Columbus—Klein, J. T.
Cudahy—Thompson, E. X.
Delafield—Pleyte, A. A.
Eastman—Myrick, A. L.
Kenosha—Robinson, H. A.
Madison—Hodges, P. C.
Taylor, F. B.

Menomonee Falls—Campbell, W. B.
Milwaukee—Durner, U. J.
Roby, H. S.
Warfield, L. M.
Mount Calvary—Beasen, J. M.
Mount Horeb—Ishmael, O. E.
Nazianz—Minahan, J. J.
Oshkosh—Brockway, F.
Rice Lake—White, A. S.
Rome—Parker, T. G.

WYOMING

Buffalo—Conyers, C. A.
Hynds, J.
Powell—Lewellen, J. D.
Sheridan—Steffen, W. A.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in The Journal, June 29, July 13 and 20.

CALIFORNIA

Long Beach—Sweet, F. D.
Los Angeles—Janes, E.
McDonald, T. G.
Pierce, S. N.
Oakland—Schutz, M. H.
Palo Alto—Williams, T. M.
San Francisco—Visalli, J.
Winnard, W.

CONNECTICUT

Bridgeport—Smith, E. S.
New Haven—Wright, L. H.
South Norwalk—West, H. B.
Stamford—Wood, C. L.

DELAWARE

Dover—McDaniel, J. S.

DISTRICT OF COLUMBIA

Washington—Ruiz, R. C.

FLORIDA

Jacksonville—Simpson, J. K.

GEORGIA

Atlanta—Vaughan, H. J.
Whelchel, G. O.
Douglas—Wilson, J. F.

ILLINOIS

Bowen—Judy, J. A.
Chicago—Hedgecock, A. J.
Welch, P. B.

INDIANA

Algiers—Whitehead, J. M.
[illegible] W. W.
[illegible]
Markleville—Williams, F. M.
Pendelton—Smith, C. E.

IOWA

Carbon—Wild, W. W.
LeCompte—Freeman, O. L.

MARYLAND

Baltimore—Warner, C. L.
Silver Springs — Montgomery, H. H.

MASSACHUSETTS

Boston—Sise, L. F.
Brookline—Wilcox, J. M.
Lawrence—McCarthy, J. A.
New Bedford—Taber, T. H.
Weston—Van Nuys, F.

MICHIGAN

Benton Harbor—Ryno, C. M.
Detroit—Van Volkenburgh, V. A.
Grand Rapids—Corey, P. V.
Whalen, J. M.

MINNESOTA

Euclid—Stuhr, J. W.
Lake Park—Snell, A. M.
Minneapolis—Swenden, C. G.
New Richland—Sybirud, H. W.
Owatonna—Smersh, J. F.
St. Paul—Schier, A. R.

MISSOURI

Kansas City—Skinner, J. O.
Walker, J. O.
Moberly—Simmons, R. R.
St. Joseph—Liberman, D. L.
St. Louis—Wilcox, B. H.

MONTANA

Helena—Worth, C.

NEBRASKA

Doniphan—Wagoner, L.

NEW HAMPSHIRE

Laconia—Watt, A. H.

NEW JERSEY

Gloucester—Geissler, E. E.
Newark—Taylor, E. C.
Trenton—Williams, G. W.

NEW YORK

Hamden—Marsland, M. E.
Kingston—Vogt, G. C.
New York—Vail, J. B.
Vorhaus, M. G.
Whisman, H. S.
Rochester—Wehle, F. W. A.
West Chazy—Stiles, H. R.

NORTH CAROLINA

Charlotte—Guthrie, W. G.
Huntersville—Lackey, M. A.
Monroe—Stewart, H. D. L.

OHIO

Albany—Webb, C. C.
Athens—Goldsberry, B. R.
Ralston—Spaulding, H. B.

OREGON

Astoria—Van Dusen, A.
Portland—Smalley, R. B.
Strong, H. L.
Warner, D. H.
White, R. F.
Young, R. G.

PENNSYLVANIA

Condersport—Smith, J. H.
Halifax—Smith, F. C.
Philadelphia—Goldburgh, H. L.
Miller, H. M.
Sangmeister, H. J.
Talley, J. E.
Pittsburgh—Callmon, V. B.
Weber, J. J.

RHODE ISLAND

Providence—Matteson, G. A.
Porter, L. B.
Van Benschoten, G. W.
Westcott, C. S.
Wing, E. S.

SOUTH CAROLINA

Woodruff—Woodruff, P. E.

TENNESSEE

Knoxville—Young, F. L.

TEXAS

Cumby—Ward, E.

VIRGINIA

Charlottesville—Waddell, W. W.
Norfolk—Whitlock, S. B.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Beauregard, Alexandria, La., for duty, from Fort Sill, Major WILLIAM S. LAWRENCE.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. WILLIAM B. FOSTER, Jr.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Riley, Major EDWARD A. COATES.

To Fort Leavenworth, Kans., for duty, Major WILFRED E. CHAMBERS.

To Fort Oglethorpe for duty, from Hoboken, Col. HENRY H. RUTHERFORD.

To Williamsbridge, N. Y.; Camp Merritt, N. J.; Fox Hills, N. Y., and *Hoboken, N. J.,* for conference, and on completion *to his proper station,* Lieut.-Col. ALLEN B. KAVANAL.

The following order has been revoked: *To Camp Cody,* Deming, N. M., as assistant to camp surgeon, Major ROBERT E PARRISH.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Jackson, Columbia, S. C., base hospital, Capt. BERTRAM E. MARSHALL, Mt. Vernon.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from New York City, Lieut: EUGENE THAMES, Mobile.

To Camp Wadsworth, Spartansburg, S. C., base hospital, Capt. WILLIAM L. THORNTON, Birmingham.

To Fort Oglethorpe for instruction, Capts. CHARLES W. HILLIARD, Dothan; MARION T. GAIENS, Mobile; Lieuts. MAURICE H. COHN, Birmingham; THOMAS W. RHOADES, Shoals.

To New Haven, Conn., for duty, from Camp Colt, Lieut. ALBERT D. McFADDEN, Auton.

Arizona

To Camp Cody, Deming, N M, base hospital, Lieut. GEORGE F. MANNING, Flagstaff.

To Fort Riley, for instruction, Capt. JOHN LeR. WALES, Globe.

Arkansas

To Comp Beauregard, Alexandria, La., base hospital, Lieut. HARRY W. BROWNING, Little Rock.

To Fort Oglethorpe for instruction, Lieut. JACK S. STELL, Fordyce.

To Fort Riley for instruction, Capt. LOENCE J. KOSMINSKY, Texarkana.

California

To Berkeley, Calif., University of California, for duty, Capt. ROBERT T. LEGGE, Berkeley.

To Camp Beauregard, Alexandria, La., base hospital, Capt. THOMAS C. MYERS, Los Angeles.

To Camp Cody, Deming, N. M., base hospital, Lieut. JOHN M. CHAIN, Eureka.

To Fort Riley for instruction, Capts. RAPHAEL MOTHERAL, Hanford; CHARLES H. BENZINGER, Moneta; SAMUEL A. SWENSON, Oakland; Lieuts. IVAN W. KETTH, Beaumont; MYER J. WHARHAFTIG, Folsom; CHARLES W. HARRISON, Loma Linda; WEBSTER F. KELLER, Long Beach; WALTER F. KITTLE, CLARENCE MELLMAN, Los Angeles; CLARK D. FANTON, Riverside; GEORGE L. BARRY, San Jose.

To Mineola, L. I., N. Y., for duty, from San Antonio, Capt. FREDERICK A. BONTHIUS, Los Angeles.

To report by wire to the commanding general, Western Department, for assignment to duty, Major HARRY M. SHERMAN, San Francisco; Lieuts. ELMER E. MARTIN, Gridley; FITCH C. E. MATTISON, Pasadena; JOHN T. O'BRIEN, Petaluma; THOMAS E. HUNT, San Francisco.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. THOMAS L. ROGERS, Long Beach.

To San Francisco, Calif., for instruction, and on completion *to Camp Fremont,* Palo Alto, Calif., base hospital, Capts. GEORGE A. LAUBERSHEIMER, Los Angeles; HARRY F. MARKOLF, Pasadena; Lieuts. SANFORD W. CARTWRIGHT, Ceres. On completion *to Camp Kearney,* Linda Vista, Calif., base hospital, Capt. CHARLES D. R. GLEASON, San Francisco. On completion *to Camp Lewis,* American Lake, Wash., base hospital, Capts. CLARENCE W. COOK, ULYSSES C. MILLER, Los Angeles; ROBERT R. HAMMOND, Lieuts. LLEWELLYN R. JOHNSON, HARMON E. PRICE, Stockton. *To Letterman General Hospital,* for temporary duty, Lieut. DEWEY R. POWELL, Stockton.

Resignation of Lieut. WARREN W. STRANGE, Sacramento, accepted.

The following order has been revoked: *To Fort McPherson, Ga.,* Major HARRY T. SUMMERSGILL, San Francisco.

Canal Zone

To Fort Oglethorpe for instruction, Lieut. MORRIS JOSEPH, Santa Tomas, Panama.

To report to commanding general, Panama Canal Department, Lieut. LEVIN W. G. ORTON, Ancon.

Colorado

To Biltmore, N. C., for temporary duty, from Denver, Capt. SAMUEL F. JONES, Denver.

To Camp Crane, Allentown, Pa., for duty, from Camp Cody, Major CHARLES F. STOUGH, Colorado Springs.

To Camp Dodge, Des Moines, Iowa, as orthopedic surgeon, from Fort Riley, Lieut. WILLIAM H. HALLEY, Pueblo.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. ELWYN R. CLARKE, Fort Morgan.

To Camp Sevier, Greenville, S. C., base hospital, Capt. CHARLES S. MORRISON, Colorado Springs.

To Fort Oglethorpe for instruction, Lieut. REUBEN SCHACHET, Denver.

To Fort Riley for instruction, Capt. JAMES M. BRADEN, Lafayette; Lieuts. WALTER J. LeROSSIGNOL, Rifle; BEN B. BESHOAR, Trinidad.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Mineola, Lieut. JOSEPH B. SALBERG, Boulder.

To Plattsburg Barracks, N. Y., for duty, from Camp Bowie, Major FRANCIS M. McNAUGHT, Denver.

To report by wire to the commanding general, Central Department, for assignment to duty Capt. JOHN A. DUNWOODY, Cripple Creek; Lieut. WILLIAM V. WATSON, Plateau City.

Connecticut

To Camp Devens, Ayer, Mass, for duty, from Camp Grant, Lieut. BURTON E. LOVESEY, New Haven.

To Camp Logan, Houston, Texas, for duty, from Camp Sevier, Capt. WILLIAM H. GRAY, Mystic.

To Fort Oglethorpe for instruction, Capts. BARTHOLOMEW F. DONOHUE, Forestville; JAMES F. ROONEY, Hartford; Lieuts. LEWIS G. BEARDSLEY, Bridgeport; JOSEPH M. HEFFERMAN, Danbury; ROBERT V. BOYCE, WILLIAM P. DALY, Hartford; WILLIAM M. JOYCE, Middletown; LUCIAN A. GERACI, New Haven; VOYLE A. PAUL, Stamford.

To Jefferson Barracks, Mo., with the board examining the troops *for* cardiovascular diseases, from Camp Beauregard, Lieut. *FRED* M. SMITH, Willimantic.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Lieut EDMUND J O'SHAUGHNESSY, New Canan.

To Vancouver Barracks, Wash., for duty, from New Haven, Capt. HAROLD S. ARNOLD, New Haven.

The following order has been revoked: *To New Haven, Conn.,* for duty, from Newport News, Lieut. SAMUEL H. BRAUDE, New Haven.

Delaware

To Fort Oglethorpe for instruction, Lieuts. ARTHUR K. LOTZ, SIGMUND B. PAWLIKOWSKI, Wilmington.

District of Columbia

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Capt. CHAUNCEY L. BARBER, Washington.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. SIMON R. KARPELES, Washington.

To Fort Oglethorpe for instruction, Capt. FRANK A. HORNADAY, Washington.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. WILLIAM J. G. THOMAS, Washington.

Florida

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. JOHN C. VINSON, Tampa.

To Fort Oglethorpe for instruction, Lieuts. LUTHER W. HOLLOWAY, Carrabella; BENJAMIN L. PADGETT, Hastings; ROBERT D. MAY, Jacksonville.

Georgia

To Camp Beauregard, Alexandria, La., base hospital, Capt. HERMAN W. HESSE, Savannah. For duty, from Fort Oglethorpe, Lieut. HOMER L. REDD, Atlanta.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Meade, Capt. WALPOLE C. BREWER, Atlanta.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. FRANCIS C. NESBIT, Waycross.

To Fort Oglethorpe for instruction, Capt. WILLIAM L. COOKE, Columbus; Lieuts. THOMAS B. ARMSTRONG, Atlanta; FRANK E. DAVES, Blue Ridge; WILLIAM G. WILLIAMS, JR., Cochran; JAMES H. CARR, Tunnel Hill.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Upton, L. I., N. Y.,* base hospital, Lieut. JAMES R. McCORD, Atlanta. On completion *to his proper station,* from Camp Upton, Lieut. THOMAS B. KING, Sandersville.

Idaho

To Camp Lewis, American Lake, Wash., base hospital, Capt. WILLIAM S. TITUS, Boise.

To Fort Riley for instruction, Lieut. JOHN H. CROMWELL, Gooding.

Illinois

To Camp Devens, Ayer, Mass., for duty, from Camp Grant, Capt. ROBERT S. GREGG, Lieut. JOHN M. BERGER, Chicago.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. DAVID O. MEADE, Pinkneyville.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Hancock, Capt. GRANT J. GRAY, Chicago; from Fort Oglethorpe, Lieuts. VIRGIL D. GREER, CONSTANTINE J. KOURSOUMIS, JACOB MEYER, Chicago.

To Camp Grant, Rockford, Ill., base hospital, Lieuts. LAVERN C. BASSETT, Furina; GEORGE H. STACY, Jacksonville; CONRAD G. APPELLE, Thompson. For duty, from Fort Riley, Lieuts. INGEBRECT JERDEE, HARRY LEWIN, Chicago; from Walter Reed General Hospital, Lieut. EDWARD J. STRICKLER, Chicago.

To Camp Hancock, Augusta, Ga., base hospital, Capt. JAMES W. BARROW, Carbondale.

To Camp Logan, Houston, Texas, for duty, from Camp Greene, Lieut. JOHN J. WILKINSON, Springfield.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. WILLIAM H. WEIRICH, Marseilles.

To Camp Sevier, Greenvile, S. C., for duty, from Camp Beauregard, Major WILLIAM R. CUBBINS, Chicago.

To Camp Sheridan, Montgomery, Ala., as assistant *to camp surgeon,* from Fort Oglethorpe, Capt. JOHN E. WALTON, Medora.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Capts. LOUIS L. FRISQUE, NORMAN KERR, Chicago. For duty, from Fort Oglethorpe, Capt. WALTER WALDEN, East Moline.

To Fort Des Moines, Iowa, base hospital, from Camp Zachary Taylor, Lieut. RALPH W. CARPENTER, Chicago.

To Fort McPherson, Ga., for duty, from Camp Grant, Major ASHLEY S. [illegible] e hospital, Lieut. JOHN H. MOORE, Chicago. Fc [illegible] M. BLUM, Chicago. For *instruction,* Lieuts. HENRY J. McCOY, Amboy; SAMUEL AXELRAD, FRANK L. FORTELA, CLAUDE E. HALE, WILLIAM S. HOWARD, JAY G. JONES, HENRY F. MAY, JOHN T. O'CONNELL, JR., CARL W. RASMUSSEN, STEPHEN A. SCHUSTER, GEORGE M. SEGAL, [illegible] CLARENCE E. SIDWELL, FREDERICK D. [illegible] OTT GOMIN, Colfax; WILLIAM V. CLARK, [illegible] McCLURE, Dahlgren; MYRON C. SHENK, [illegible] HIBBE, Springfield; ROSCOE L. BARLOW, [illegible] as a private, Lieut. HARRY O. POPE, Latham.

To Fort Sam Houston, Texas, for duty, from Camp Grant, Major EGBERT W. FELL, Elgin; from Camp Travis, Major PATRICINNE J. H. FARRELL, Chicago.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. WALTER E. KELLY, GEORGE F. YATES, Chicago; RALPH B. SCOTT, Venice; RICHARD HERRICK, Wyanet.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Wheeler, Capt. JAMES A. BRITTON, Chicago.

To West Point, Miss., Signal Corps Aviation Schcool, as flight surgeon, from Mineola, Capt. DAVID R. SCOTT, Macomb.

To W [illegible] for duty, from Fort Oglethorpe, Capt. CHARL [illegible] Blooming.

Honor [illegible] ARTHUR F. WILHELMY, Decatur. On account of physical disability existing prior to entrance into the service, Lieut. JAMES T. BREAKEY, Mason.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. PAUL M. HUNTER, Chicago.

Indiana

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Capt. FLAVIUS J. BECK, Hartsville.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. CHARLES A. SELLERS, Hartford City.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. EMIL T. DIPPELL, Huntington.

To Camp Gordon, Atlanta, Ga., for duty, Lieut. G. H. PARMENTER, Stewartsvile; from Fort Oglethorpe, Lieut. ELI LEVIN, Indiana Harbor.

To Camp Greene, Charlotte, N. C., base hospital, Capt. HUGH J. WHITE, Hammond.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. LUCIAN W. SMITH, Warren.

To Camp Sevier, Greenvile, S. C., base hospital, Capt. FRANK A. TABOR, Terre Haute; Lieut. EMIL G. WINTER, Indianapolis.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. CARL V. DAVISSON, West Lafayette.

To Camp Travis, Fort Sam Houston, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. JACOB ADER, Danville.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. CHARLES H. BRUNER, Greenfield.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. HARRY J. LAWS, Lafayette.

To Fort Benjamin Harrison fpr duty, Lieut. THOMAS L. SULLIVAN, Indianapolis.

To Fort McPherson, Ga., for temporary duty, Capt. HEILMAN C. WADSWORTH, Washington.

To Fort Oglethorpe for instruction, Capts. STEPHEN L. EGART, [illegible] L. BRAMKAMP, Richmond; Lieuts. THEO- [illegible] Bremen; FRANCIS H. FOX, Hammond; ROY L. [illegible] SOLOMON G. SMELZER, Richmond; GEORGE W. SMALL, Veedersburg; ARTHUR J. BAUER, Lafayette.

Iowa

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. ARTHUR J. ROSS, Perry.

To Camp Bowie, Fort Worth, Texas, base hospital, from duty as a private, Lieut. HARRY H. DILLEY, Des Moines.

To Camp Cody, Deming, N. M., base hospital, Capt. EDWARD L. ROHLF, Waterloo.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. CHARLES H. MULRONEY, Camp Dodge.

To Camp Devens, Ayer, Mass., for duty, from Camp Custer, Capt. EDWARD S. PARKER, Ida Grove.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. ISAAC H. ODELL, Des Moines.

To Camp Grant, Rockford, Ill., base hospital, Capt. ISAAC E. NERVIG, Sioux City. For duty, from Fort Riley, Lieut. JOHN T. HANNA, Kellogg.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. JAMES S. COOPER, Burlington; ALBERT E. ACHER, Fort Dodge.

To Fort McPherson, Ga., for duty, from Camp Cody, Lieut. GUS. B. YOUNG, Des Moines; from Camp Dodge, Lieut. JAMES A. PORTER, Hedrick; from Camp Greene, Lieut. ARTHUR E. SHAPPELL, Knoxville; from Camp Lewis, Capt. CARL J. SNITKAY, Belle Plaine.

To Fort Riley for instruction, Capts. ROY MOON, Glenwood; JOHN E. BRINKMAN, Waterloo; Lieuts. EDWIN C. YODER, Iowa City; HOWARD L. SIEG, Marshalltown; ROYDON B. YODER, Northwood; MALCOLM D. WINTER, Truro; WELLWOOD M. NESBIT, Waterloo; PAUL G. INGHAM, Whiting.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. EDWARD A. COUPER, Britt.

To Morrison, Va., for duty, from Fort Oglethorpe, Lieut. GEORGE A. BEMIS, Garner.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. SIDNEY J. JONES, Fort Dodge.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WALTER G. FINLEY, Mondamin.

Kansas

To Camp Cody, Deming, N. M., as assistant to camp surgeon, from Fort Riley, Lieut. ALVAN M. FORTNEY, De Soto. Base hospital, Capt. WILLIAM A. NIXON, Great Bend.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieuts. WALTER C. KELLER, Athol; CARL C. CULVER, Burlington; GORDON W. HIGGINBOTHAM, Wichita.

To Fort Oglethorpe for instruction, Capt. JOHN W. FAUST, Kansas City.

To Fort Riley for instruction, Capt. HARRY L. COBEAN, Wellington; Lieuts. ROY M. EDMISTON, Americus; EVERETT W. JOHN- [illegible] HN E. CASTLES, Lawrence; RAYMOND W. [illegible] ARTHUR H. HAYNES, Sabetha; JOHN W. [illegible]

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. WILLIAM H. GREIDER, Topeka.

Kentucky

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Capt. EDWARD C. BARLOW, Georgetown.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capt. JAMES B. SMITH, McKinney.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. CLIVE A. MOSS, Williamsburg.

To Fort Leavenworth, Kan., for duty, Lieuts. WALLER C. COMBS, Kirksville; GROVER S. BRZOZOWSKY, Louisville.

To Fort Oglethorpe for instruction, Lieuts. GEORGE W. BOOHER, Berry; WALTER F. McCROCKLIN, Louisville.

To Fort Riley for instruction, Capt. JOSEPH M. O'MALLEY, Covington.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. CLARENCE WOODBURN, Central City; WILLIAM A. McKENNEY, Falmouth; JOHN M. ALEXANDER, Fulton; JAMES McC. HUBBARD, Hickman; THOMAS L. PHILLIPS, Kuttawa.

Louisiana

To Camp Beauregard, Alexandria, La., base hospital, Capts. MAURICE J. COURET, WILLIAM W. LEAKE, New Orleans; Lieuts. AMABLE A. COMEAUX, Gueydan; WILLIAM T. PATTON, PAUL T. TALBO, New Orleans. For duty, from Fort Oglethorpe, Lieut. JOHN C. CHAPMAN, Colfax.

To Camp Lee, Petersburg, Va., for duty, from Camp Dix, Major JAMES B. GUTHRIE, New Orleans.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. ALLEN B. WHEELIS, Marion.

To Fort Jay, N. J., for duty, from Fort Riley, Lieut. WILLIAM E. BALSINGER, New Orleans.

To Fort Oglethorpe for instruction, Lieut. WILLIAM L. BENDEL, Lake Charles; EDGAR J. BERANGER, New Orleans; WILLIAM E. BARKER, Placquemine.

To Fort Sam Houston, Texas, for duty, from Camp Travis, Major EDMUND MOSS, New Orleans.

Maine

To Fort Ethan Allen, Vt., for duty, Lieut. HARLAN R. WHITNEY, Windham.

To Fort Oglethorpe for instruction, Capt. JOHN C. HAM, Belfast; HERBERT M. HOWES, Topham; LORENZO W. HADLEY, Union. To give orthopedic instruction, and *on completion* to Fort Riley, from Fort Riley, Major WILLIAM C. PETERS, Bangor.

Maryland

To Army Medical School for instruction, Lieut. SIDNEY O. REESE, Jr., *Baltimore.*

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. BENJAMIN M. JAFFE, Baltimore.

To Camp Meade, Admiral, Md., *as assistant to camp surgeon,* from Camp Wheeler, Lieut. EDWARD B. BEASLEY, Baltimore. Base hospital, Lieut. COEN L. LUCKETT, *Baltimore.*

To Camp Shelby, Hattiesburg, Miss., for duty, from New Haven, Lieut. SAMUEL SNYDER, *Maryland* State Tuberculosis Sanitarium.

To Fort McPherson, Ga., for duty, Capt. JAMES M. H. ROWLAND, *Baltimore;* from Camp Wadsworth, Lieut. HOWARD H. JOHNSTON, Baltimore.

To Fort Oglethorpe for instruction, Lieuts. IPOLITAS B. BRONUSHAS, HARRY R. CARROLL, CHARLES C. CHILDS, ARTHUR D. MORAN, *Baltimore.*

To Rockefeller Institute for instruction *in the treatment of* infected wounds, and on completion *to his proper station,* from Camp Meade, Capt. THOMAS R. PAYNE, Corbett.

Massachusetts

To Army Medical School for instruction, Lieut. HENRY T. COMPTON, Cuttyhunk.

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, *Lieut. FRANK F. SANDLER,* Revere.

To Camp Upton, L. I., N. Y., base hospital, Capts. JOHN W. VOSS, Beverly; WILLIAM *H.* ALLEN Mansfield.

To Camp Wadsworth, Spartanburg, S. C., with the board examining the [illegible] for nervous and mental diseases, Capt. MICHAEL M. JORDAN, [illegible]

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Lieut. JAMES H. COOK, Quincy.

To Camp Zachary Taylor, Louisville, Ky., for duty, from *Fort Oglethorpe,* Lieut. CARL A. DAHLEN, Boston.

To Fort Oglethorpe for instruction, Capts. ALBERT A. McCAULEY, Brighton; HOWARD W. JEWETT, Lowell; Lieuts. WILLIAM A. BISHOP, [illegible] ARTHUR F. SARGENT, Boston; LOUIS J. GRAN[illegible] MANFRED E. SIMMONS, Dedham; JOSEPH [illegible], Lowell; IRVING F. ARMSTRONG, Marlboro; SIDNEY J. SOLOMON, Revere; FREDERICK A. MEAD, *Williamsett.*

To Fort Worth, Tex., Barton Field, Signal Corps Aviation School, for duty, from Mineola, Lieut. EMMETT E. LIGHT, Springfield.

To New Haven, Conn., for duty, Lieut. CECIL W. CLARK, Newtonville.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Lieut. WALTER F. ROBIE, Baldwinsville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Greene,* Charlotte, N. C., base hospital, Capt. EDWARD P. RICHARDSON, Boston.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, and on completion *to his proper station,* from Fort McHenry, Capt. FRANK A. DAVIS, Boston.

Michigan

To Camp A. A. Humphreys, Accotink, Va., as camp surgeon, from Fort Oglethorpe, Capts. SAMUEL C. CROW, Detroit; CHAUNCEY L. BARBER, Lansing.

To Camp Cody, Deming, N. M., as assistant to camp surgeon, from Fort Riley, Lieut. FORREST R. OSTRANDER, Lansing.

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Boston, Lieut. HARTHER L. KEIM, Ann Arbor. For duty, from Camp Grant, Lieut. EMIL V. MAYER, Detroit.

To Camp Dodge, Des Moines, Ia., base hospital, Major BURTON R. CORBUS, Grand Rapids.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. LYLE O. SHAW, Detroit.

To Camp Meigs, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. ALONZO B. PERSLEY, Detroit.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. MAURICE C. LOREE, Ann Arbor.

To Fort Oglethorpe for instruction, Ma[illegible] NEIL S. MACDONALD, Houghton; Capt. VERNON J. HOOPER, [illegible] Swartz Creek; Lieuts. LAWRENCE H. [illegible] S. BULFORD, STEPHEN G. MOLLI[illegible] Detroit; JOHN T. BURNS, Kalamazoo; [illegible] sweet.

To New York City, Neuro-Surgical School, for inspection, and on completion *to his proper station,* Capt. GROVER C. PENBERTHY, Detroit.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. GEORGE H. THOMAS, Holland; HOWARD I. POST, Ypsilanti.

To the inactive list, from Hoboken, Major UDO J. WILE, Ann Arbor.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EDWARD P. WAID, Salem.

Minnesota

To Camp Custer, Battle Creek, Mich., base hospital, Capt. ANDREW F. MOYNIHAN, Sauk Centre; Lieut. DAVID E. NELSON, Brainerd.

To Camp Dodge, Des Moines, I[illegible] Lieut. CHARLES J. McGUIRE, Alturas; ANDREW [illegible] MICHAEL C.

To Camp Grant, Rockford, Ill., [illegible] WELCH, St. Paul.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. JOHN R. WOOD, Hallock.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. HUGO J. A. J. HARTIG, Minneapolis.

To Camp Zachary Taylor, Louisville, Ky., base *hospital,* Capts. MATTHEW J. LYNCH, Minneapolis; JAMES W. ANDRIST, Owatonna.

To Fort McPherson, Ga., for duty, from Camp Dodge, Capt. HERBERT A. MORRISS, *Minneapolis.*

To Fort Oglethorpe for instruction, Capt. CHARLES P. ROBBINS, Winona; Lieut. ROBERT S. FORBES, West Duluth.

To Fort Riley *for instruction,* Capts. EDGAR R. BARTON, Frazee; GEORGE F. LEMKE, St. Paul; ALBERT A. TOFTE, Pine City.

To Rockefeller Institute for instruction in laboratory work, *and on* completion *to Army Medical School,* for duty, from Fort Riley, Lieut. WILLIAM J. EKLUND, Duluth.

To Vanc[illegible] h., for duty, from New Haven, Lieut. LEE W. P[illegible]

Resignation of DONALD L. LANEY, Brown Valley, accepted.

Mississippi

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. SILAS W. PEARSON, *Louisville.*

To Camp Grant, Rockford, Ill., for duty, from Camp Greene, Lieut. JULIUS M. REYNOLDS, Shabuta.

To Camp Hancock, Augusta, Ga., base hospital, Capt. GEORGE W. REMBERT, Jackson.

To Camp John Wise, San Antonio, Tex., for duty, from Fort Oglethorpe, Capt. JOHN R. KITTRELL, Laurel.

To Camp Sevier, Greenville, S. C., *for* duty, from Camp Beauregard, Capt. JAMES S. REID, Lamkin.

To Camp Upton, L. I., N. Y., base hospital, from Camp Abraham Eustis, Lieut. WIRT A. RODGERS, *Jackson.*

To Fort Oglethorpe for instruction, Capts. JOHN C. McNAIR, Fayette; *GEORGE G. ASH,* Lexington; Lieuts. SAMUEL F. NEAL, Marks; ARTHUR F. KYGER, Pinola; MONTIEZUMA PORTER, Water Valley.

Missouri

To Camp Beauregard, Alexandria, La., as assistant to camp surgeon, from Fort Riley, Lieut. LANSFORD M. SPALDING, *Olean.* Base hospital, Lieuts. JAMES M. BLACK, WILLIAM H. CLITHERO, St. Louis.

To Camp Bowie, Fort Worth, Tex., *base hospital,* Lieut. ANDREW H. CLEVELAND, St. Louis.

To Camp Cody, Deming, N. M., base hospital, Capt. LOUIS RASSIEUR, St. Louis.

To Camp Devens, Ayer, Mass., base hospital, from Camp Pike, Lieut. LAWRENCE D. INLOE, *Jefferson City.*

To Camp Dodge, Des Moines, Ia., base hospital, Capt. WILLIAM T. HIRSCHI, St. Louis.

To Camp Grant, Rockford, Ill., *for* duty, from Camp Greene, Lieut. CECIL S. CAMPBELL, St. Louis; from Fort Riley, Capt. WILLIAM A. POTTER, Lancaster.

To Camp Sevier, Greenville, S. C., base hospital, from *Camp Beauregard,* Lieut. VINCENT F. TOWNSEND, St. Louis.

To Camp Sherman, Chillicothe, Ohio, as orthopedic *surgeon,* from Camp Custer, Lieut. LEON V. URBANOWSKI, St. Louis.

To Fort Des Moines, Ia., base hospital, from Camp Cody, Lieut. JOHN L. *TIERNEY,* St. Louis.

To Fort McPherson, Ga., for duty, from Camp Beauregard, Lieut. RALPH L. COOK, St. Louis; from Camp Gordon, Lieut. HERBERT H. PRICE, St. Louis; from Fort Oglethorpe, Lieut. OMAR R. SEVIN, St. Louis.

To Fort Oglethorpe for instruction, Major MEYER WIENER, St. Louis; Capts. MAX W. MYER, Columbia; JAMES M. RUSSELL, Monett; *REINHARD E. WOBUS,* St. *Louis;* Lieut. ALFRED L. SAWYER, Fort Fairchild. For temporary duty, from Colonia, Capt. RALPH F. NIEDRINGHAUS, St. Louis.

To Fort Riley for instruction, Capts. FRED L. OGILVIE, Blodgett; ELISHA H. G. WILSON, Cape Girardeau; HUGH S. ROWLETT, Marysville; OTTO B. ILCH, St. Charles; Lieuts. LAWRENCE L. SMITH, Bethel; OSCAR O. MEREDITH, Breckenridge; FRANK A. HUDSON, CLAUDE B. MEYER, Buffalo; EA[illegible] Gallatin; *MAURICE E. GRIER,* HENRY H[illegible] SINGLETON, Kansas City; WILLIAM E. [illegible] CHRIS. M. SAMPSON, St. Joseph; CARL J. [illegible] BECHTHOLD; THOMAS L. DRANEY, JOSEP[illegible] L. HEID, GEORGE H. MILLER, WILLIAM S. REILLY, WILLIAM J. SALISBURY, JOSEPH L. THURMAN, GEORGE L. TONELLI, OTTO J. WILHELMI, St. Louis; CLYDE W. PARSONS, Sweet Springs.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Upton, Capt. IRA H. MILLER, Louisiana.

To St. Louis, Mo., for duty, from the Surgeon-General's *Office,* Major HANAU W. LOEB, St. Louis.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. HENRY S. BROOKES, CHARLES H. MILLER, St. Louis. On account of physical disability not incident to the service, Lieut. JOHN N. DARROUGH, Kansas City.

Montana

To Camp Devens, Ayer, Mass., for duty, from Camp Grant, Lieut. ALEXANDER M. MacCAULAY, Great Falls.

To Camp Grant, Rockford, Ill., for duty, from Army Medical School, Lieut. WALTER E. ESTABROOK, Moccasin.

To Fort Riley for instruction, Capt. DUNCAN S. MacKENZIE, Havre.

To San Francisco, Calif., for instruction, and on completion *to Camp* Kearney, Linda Vista, Calif., base hospital, Lieut. WALTER I. FIREY, Roundup.

Nebraska

To Camp Custer, Battle Creek, Mich., base hospital, Capt. GEORGE B. BRASH, *Beatrice.*

To Camp Devens; Ayer, Mass., for duty, from Camp Dix, Capt. EARL B. BROOKS, Pawnee City; from Camp Grant, Lieut. ROBERT C. PERSON, Omaha.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, *Capt.* JAMES S TAYLOR, Fairbury.

To Camp Sevier, Greenville, S. C., *for* duty, from Camp *Dodge,* Lieut. DANIEL FRANKLIN, Omaha.

To Chicago, Ill., Northwestern University School of Medicine, *for* instruction, from Fort Riley, Lieut. J. IRWIN *LIMBURG,* Walthill.

To Fort Riley for instruction, Capt. *ALLAN J. CAMERON,* Herman; Lieut. ARTHUR B. CRAMB, Tecumseh.

To Hoboken, N. J., base hospital, Lieut. FREDERICK W. *BUCKLEY,* Beatrice.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. JOSEPH *H.* BOYES, Hebron.

Nevada

To Fort Riley for instruction, Lieut. HENRY A. PARADIS, Montello.

New Hampshire

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. NOEL E. GUILLET, Manchester.

To Fort Oglethorpe for instruction, Lieut. DENNIS L. BLACK, Nashua.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Lieuts. ELMER E. LAKE, Hampstead; FRED C. RUSSELL, Haverhill; CHENEY I. COLE, Henniker.

New Jersey

To Camp Cody, Deming, N. M., with the board examining the troops for tuberculosis, from Camp Hancock, Capt. GRANT THORNBURN, Newark.

To Camp Devens, Ayer, Mass., base hospital, Capts. CLIFFORD R. NEARE, East Orange; JOSEPH A. MACLAY, Paterson. For duty, from New York, Lieut. DAVID C. THOMPSON, Bloomfield.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. WILLIAM O'G. [illegible]

To [illegible], Ala., for duty, from Fort Oglethorpe, Lieut. [illegible] Newark.

To Camp Upton, L. I., N. Y., base hospital, Lieut. CHARLES H. PRATT, Plainfield.

To Fort Oglethorpe for instruction, Capt. EDWARD S. SHARPE, Atlantic City; Lieuts. FRANK E. MASON, Carney's Point; HORACE W. [illegible] SAMUEL S. FERN, Elizabeth; WILLIAM L. [illegible] WILLIAM W. COX, Montclair; JOSEPH G. [illegible], LOUIS J. BOHL, Paterson.

To Hoboken, N. J., for duty, from Army Medical School, Lieut. WALTER W. SCHMIDT, Cliffside; from Fort Oglethorpe, Lieut. ALBERT G. HULETT, East Orange.

Honorably discharged, Lieut. JACOB L. MATHESHEIMER, Jersey City.

The following orders have been revoked: *To Camp Gordon,* Atlanta, Ga., for orthopedic instruction, and on completion *to Fort McPherson, Ga.,* for further orders, from Fort Oglethorpe, Lieut. ALEXANDER J. McCRAE, Upper Montclair. *To Fort Oglethorpe* for instruction, Lieut. MAX KUMMEL, Harrison.

New Mexico

To Camp Grant, Rockford, Ill., for duty, Lieut. HOWE K. RIDDLE, Reserve.

To Fort McPherson, Ga., for duty, from Camp Lewis, Lieut. ALMONT A. HUBBARD, Van Houten.

To report by wire to the commanding general, Southern Department, for assignment to duty, Capt. CHARLES H. JAMESON, Albuquerque.

New York

To Aberdeen, Md., Ordnance Proving Grounds, for duty, Lieut. JAMES S. LYONS, Albany.

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. LOUIS F. SANMANN, New York.

To Baltimore, Md., Johns Hopkins University, for *temporary duty,* from Camp Lee, Major RALPH A. KINSELLA, Lieut. FREDERICK D. ZEMAN, New York.

To Biltmore, N. C., for temporary duty, and on completion *to his proper station,* Major EDWARD K. DUNHAM, New York.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Plattsburg Barracks, Lieut. DANIEL A. EISELINE, Sportsville.

To Camp Alfred Vail, Little Silver, N. J., for duty, from Camp Sherman, Lieut. ASA L. LINCOLN, New York.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Sevier, Lieut. WILLIAM H. TAYLOR, Brooklyn; from Fort Oglethorpe, Lieut. JOHN G. F. HISS, New York.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. LESLIE J. ATKINS, Orleans.

To Camp Lee, Petersburg, Va., base hospital, from Camp Meade, Major EDWARD W. PINKHAM, New York. For duty, from Fort Oglethorpe, Lieut. FREDERIC WASHNITZER, Brooklyn.

To Camp MacArthur, Waco, Texas, as orthopedic surgeon, from Army Medical School, Lieut. CHARLES GOLDMAN, Brooklyn.

To Camp Meade, Admiral, Md., for duty, Lieut. PATRICK J. HIRST, Middle Grove.

To Camp Sevier, Greenville, S. C., base hospital, from Williamsbridge, Major WATSON A [illegible] Plains. For duty, from Camp Beauregard, Lieut. [illegible] New York.

To Camp Shelby [illegible] or duty, from New Haven, Lieuts. HENRY M [illegible] ia; HENRY A. LATANE, McGregor. With the board examining the command for nervous and mental diseases, from Camp Dix, Capt. JOHN SCOTT RICHARDS, Randall's Island; from Camp Jackson, Lieut. HOWARD W. DAVIS, Poughkeepsie.

To Camp Upton, L. I., N. Y., base hospital, from Fort Oglethorpe, Lieut. HENRY M. SCHERER, New York.

To Camp Zachary Taylor, Louisville, Ky, for duty, from Fort Oglethorpe, Lieut. CHARLES MAGGIO, Rochester.

To Fort Leavenworth, Kans., for duty, from Camp Zachary Taylor, Lieut. EMIL J. PELLINI, New York.

To Fort McPherson, Ga., for duty, from Camp Bowie, Capt. WELLINGTON A. LEBKICHER, Fordham; from Camp Wadsworth, Lieut. LOUIS CARP, New York.

To Fort Oglethorpe for instruction, Capts. [illegible] VILLCOX, Hamilton; GILBERT D. DARE, [illegible] T. HIGGINS, New York; Lieuts. HARRY [illegible] YMAN C. LEWIS, Belmont; WILLIAM PA[illegible] JEL S. D. ARLUCK, ROBERT BAILIN, HARRY C. HARRIS, ISIDOR H. KUEL, THOMAS J. McKERNAN, MILTON A. MILLER, MAURICE MORRISON, THOMAS I. M. REID, Jr., HAROLD W. SHUTTER, MORRIS WINARD, Brooklyn; HOWARD D. HOEHMAN, VINCENT C. MOSCATO, Buffalo; WILLIAM H. JONES, Jamestown; JOHN V. SWIERAT, Kings Park; KENNETH A. SMITH, EDWARD A. TWIST, Lackawanna; MAX SONKIN, Long Island City; BRUCE M. M. PHELPS, Lowville; MAX ALEXANDER, FRANK A. BIEN, ALFRED F. CALVELLI, JAMES M. CRONK, LEO FUSKE, JOSEPH [illegible] ART, KENT W. JARVIS, EDWARD J. [illegible] RVEL, CHARLES MESTER, JOHN J. [illegible] JLLIVAN, MICHAEL J. SWEENEY, [illegible] New York; EDWARD S. AMSLER, [illegible] ster; EARLE C. WINSOR, Rockwell's [illegible], Schenectady.

To New Haven, Conn., for duty, Lieut. STANLEY L. WANG, New York.

To New York City, Bellevue Hospital, for instruction, and on completion *to Newport News, Va.,* for temporary duty, Capt. CHARLES E. HAWKES, New York.

To report by wire to the commanding general, Eastern Department, for assignment to duty, Lieuts. OTIS H. BRADLEY, Hudson; ARTHUR BESEMER, Marion; OTTO PFAFF, Oneida.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. JOSEPH P. LADUCA, Buffalo. For instruction in the treatment of infected wounds, and on completion *to Camp Upton, L. I., N. Y.,* base hospital, Capt. FRANCIS C. GOLDSBOROUGH, Buffalo. On completion *to his proper station,* from Camp Dix, Capt. EDWARD H. PERSHING, Woodmere.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. RICHARD L. J. KEMEL, New York; from Washington, Capt. HERMAN L. RAYMOND, Collins.

Resignation of Lieut. ABRAHAM SHORR, Brooklyn, accepted.

The following orders have been revoked: *To Camp Travis,* Fort Sam Houston, Texas, for duty, Lieut. LOUIS N. SMERNOFF, Jamaica. *To Fort Oglethorpe* for instruction, from New York, Lieut. FRANKLIN W. RICE, New York.

North Carolina

To Army Medical School for instruction, Lieut. FRANK J. GARRISS, Lewiston.

To Biltmore, N. C., for temporary duty, Major WILLIAM LEROY DUNN, Asheville.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. ROBERT E. ABELL, Chester.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. EVANDER McN. McIVER, Jonesboro.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. GEORGE F. BULLARD, Elizabethtown.

To Fort McPherson, Ga., base hospital, from Camp Jackson, Major CHARLES S. LAWRENCE, Winston-Salem.

To Fort [illegible], Capt. ARTHUR F. REEVES, Asheville; [illegible] IBSON, Batesburg; JUNIUS R. VANN, Jr., [illegible] C. McCLEES, Lake Junaluska.

Honorabl[illegible] M. BEARDEN, Lawrence.

Resignatic[illegible] W. COLBY, Asheville, accepted.

North Dakota

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. WALTER S. CHERRY, Enderlin.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Capt. BERNARD S. HICKERSON, Mandan.

Ohio

To Baltimore, Md., Johns Hopkins University, for temporary duty, from Army Medical School, Capt. RICHARD D. BELL, Cleveland.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Capt. SMITH E. McADOO, Akron; Lieut. ALFRED W. BALSLEY, Findlay.

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Capt. JAMES N. WYCHGEL, Cleveland; Lieuts. ELI F. RAMBO, Akron; FREDERICK SWING, Harrison; OSCAR H. HENNINGER, Ironton; RALPH T. SAUNDERS, Sandusky.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Sevier, Lieut. GEORGE E. FLINN, Amesville; from Fort Oglethorpe, Capt. ZADOK F. ATWELL, Amsterdam.

To Camp Jackson, Columbia, S. C., base hospital, Capt. GEORGE L. CHAPMAN, Toledo.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, Capt. EDWARD C. LUDWIG, Columbus.

To Camp Shelby, Hattiesburg, Miss., with the board examining the command for nervous and mental diseases, Lieut. CARL W. SAWYER, Marion.

[illegible] tgomery, Ala., base hospital, Capt. LOUIE C. [illegible] artanburg, S. C., base hospital, Lieut. BART[illegible]

To Fort McPherson, Ga., for duty, from Camp Wadsworth, Major FRED FLETCHER, Columbus.

To Fort Oglethorpe for instruction, Capts. EDWARD S. JOHNSON, Cincinnati; ALEXANDER M. STEINFELD, Columbus; CLARK G. AXLINE, Lancaster; WORTH T. GATCHELL, Ravenna; Lieuts. FRANK P. GERACI, MAX MAHRER, DAVID L. REES, Cleveland; GEORGE O. HOSKINS, Columbus; MERRILL D. PRUGH, Dayton; BURT A. MARQUARD, Dover; HARRY W. RECK, Gettysburg; JAMES C. [illegible] JOHN F. HILL, McConnelsville; FRED E. [illegible]

To Fort Riley for instruction, Lieut. FRANKLIN J. McDONALD, Leadville.

To report by wire to the commanding general, Central Department, for assignment to duty, Capts. LEROY B. HUMPHREY, Akron; JAMES A. McGREW, New Athens; Lieuts. JOHN P. SCHEIB, Columbus; THOMAS E. WALKUP, Dayton; JOHN WOLFE, Delphos; CLEMENT L. V. BELL, Fitchville; WILLIAM LEONARD, Fostoria; SHERMAN McKENNEY, Fremont; JOHN B. KRING, Galion; EUGENE G. HUSTED, Greenville; JOHN A. GRAFFT, Hamilton; JOHNSON S. HUNTER, Jackson; JOHN D. WATTERSON, Kalida; BENJAMIN C. PILKE, Monroeville; AGNUS A. MACKINTOSH, North Fairfield; JAMES O. WICKERHAM, Rockford; FRANK L. NEWBURG, Toledo; MAURICE L. SMITH, Urbana; FRANK B. GREGG, Wellington; OLIVER T. SPROULL, West Union.

The following order has been revoked: *To Camp Grant,* Rockford, Ill., for duty, from Hoboken, Lieut. GEORGE S. NUTT, Youngstown.

Oklahoma

To Camp [illegible] La., for duty, from Fort Oglethorpe, Lieut. [illegible] Drumwright.

To Camp B[illegible] s, base hospital, Lieut. ORION R. GREGG, Waynoka.

To Camp Cody, Deming, N. M., base hospital, Capt. RALPH E. WELLER, Pawnee; Lieut. GEORGE H. WALLACE, Cheyenne.

To Camp Fremont, Palo Alto, Calif., as assistant to camp surgeon, from Fort Riley, Lieut. HOWSON C. BAILEY, Sulphur.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CHARLES H. McBURNEY, Clinton.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. RAYMOND R. HUME, Minco. For duty, from Camp Pike, Lieut. CLAUDE E. PUTNAM, Eakley.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp MacArthur, Lieut. JOSEPH H. JANSING, Tryon.

To Fort McPherson, Ga., for duty, from Camp Bowie, Lieut. ETHAN E. WAGGONER, Tonkawa.

To Fort Oglethorpe for instruction, Lieuts. BENJAMIN G. JONES, Foss; SHERIDAN W. MATTOX, Marion; HARVEY V. DRESBACH, DUKE W. VINCENT, Oklahoma City; LAWRENCE H. CARLETON, Tulsa.

To Fort Riley for instruction, Lieut. JOEL R. HOLLIDAY, Oklahoma City; ALBERT B. HOLSTED, Temple.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieuts. JOSEPH M. POSTELLE, Oklahoma City; JOSEPH M. THOMPSON, Tahlequah.

Oregon

To Fort McPherson, Ga., for duty, from Camp Lewis, Major PAUL ROCKEY, Portland.

To Fort Riley for instruction, Lieut. CHARLES S. MENZIES, Portland.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Capt. WILLEY H. NORTON, Portland.

To San Francisco, Calif., for instruction, and on completion *to Camp Lewis,* American Lake, Wash., base hospital, Lieut. HORACE P. BELKNAP, Jr., Portland.

The following order has been revoked: *To Camp Meade,* Admiral, Md., for duty, from Fort Des Moines, Lieut. RICHARD J. JAMES, Portland.

Pennsylvania

To Army Medical School for instruction, Lieut. EDGAR W. KEMNER, Philadelphia; from Camp Greene, Lieut. JOHN B. HAINES, Philadelphia; from Camp Jackson, Lieut. PAUL S. SEABOLD, Philadelphia; from Walter Reed General Hospital, Lieut. JOHN HAYES, Crafton.

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Major MALCOLM C. CROW, Media.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. LOUIS W. GROSSMAN, New Castle.

To Camp Meade, Admiral, Md., *base hospital, Lieut.* FRANK C. CARR, Swarthmore.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. RAYMOND F. WIVELL, Pittsburgh. For duty, from Camp Sheridan, Lieut. NATHANIEL G. SHAFTITZ, Mont Alto.

To Camp Upton, L. I., N. Y., base hospital, Lieut. HORACE C. KINZER, Lancaster.

To Camp Wadsworth, Spartanburg, S. C., with the board examining the command for nervous and mental diseases, and on completion *to his proper station,* from Camp Jackson, Lieut. WILLIAM C. MILLER, Warren.

To Camp Wheeler, Macon, and *Camp Gordon,* Atlanta, Ga.; *Camp Jackson,* Columbia, S. C., and *Fort McPherson, Ga.,* for conference, and on completion *to his proper station,* from Camp Zachary Taylor, Major HERBERT FOX, Philadelphia. For duty, from Fort Oglethorpe, Lieut. ALBERT F. DUNSMORE, Barnesboro.

To Camp Zachary Taylor, Louisville, Ky., *for duty, from* Fort Oglethorpe, Lieut. HARRY ABRAHAM D. BAER, Abington.

To Fort Des Moines, Iowa, base hospital, from Camp Zachary Taylor, Capt. PATRICK J. McDONNELL, Archbald.

To Fort Leavenworth, Kan., for duty, Lieut. NORBERT D. GANNON, Erie.

To Fort McPherson, Ga., for temporary duty, from Camp Hancock, Lieut. DANIEL W. FRYE, Pittsburgh; from Camp McClellan, Lieut. AARON L. BISHOP, Philadelphia.

To Fort Oglethorpe, as assistant instructor in surgery, from Philadelphia, Capt. WALTER E. LEE, Philadelphia. For duty, from duty with the Council of National Defense, Major HENRY D. JUMP, Philadelphia; from Camp Lee, Lieut. REUBEN H. PEARLMAN, Pittsburgh; from Fort Oglethorpe, Lieut. JAMES J. O'CONNOR, Mildred. For instruction, Major WILLIAM C. MILLER, Harrisburg; Capts. JAMES V. HARSHA, Carrick; BRUCE LICHTY, Meyersdale; WILLIAM J. MERRILL, Philadelphia; WILBUR M. HOLTZ, Pittsburgh; JACOB K. LEVAN, St. Marys; Lieuts. CLARENCE C. ROGERS, Allentown; DANIEL F. FREDERICK, Ashley; *BROOKLYN B. LEVENGOOD,* Bellwood; ANTHONY M. BENNARDI, Bradford; FRANCIS B. EVELAND, GEORGE H. MILLER, Bryn Mawr; WILLIAM P. DODDS, Cabot; JOSEPH M. CORSON, Chatham Run; JAMES R. PARKER, Chester; THOMAS D. MILLS, Clarks Mills; SAMUEL T. McCABE, Defiance; SAM G. BECK, RALPH A. FISHER, Easton; JAMES A. M. RUSSELL, BARNEY B. SMITH, Erie; JAMES S. SEITZ, Glen Rock; PAUL M. BLACKBURN, THOMAS P. COLE, Greensburg; CLARENCE W. McELHANEY, RALPH E. PILGRIM, Greenville; WILLIAM A. BENNETT, Harrisburg; GEORGE C. SNEAD, Lynchburg; CHARLES W. DIXON, McDonald; WILLIAM E. SEIBERT, Fannettsburg; IRA M. HENDERSON, Petersburg; WILLIAM V. COYLE, HARVEY M. HAGSDORN, LOUIS MACKLER, WILLIAM H. PERKINS, REGINALD L. PREES, JOHN H. READING, Jr., JOSEPH F. RICHARDS, MORRIS SEGAL, ALFRED R. SERAPHIN, RAYMOND L. SOMMERS, JAMES F. TALLEY, HARRY G. THIGPEN, Philadelphia; PAUL G. ATKINSON, SAMUEL A. BEDDALL, ANTONIO BIANCO, LOUIS C. MECKEL, TIMOTHY J. MORAN, EUGENE J. TRUSCHEL, CLARK W. WAKEFIELD, Pittsburgh; RALPH L. REBER, Reading; JOSEPH S. MILLER, St. Clair; ALVORDI J. SIMPSON, Summerville; LAWRENCE L. STEPP, Valencia; JAMES S. McCARTNEY, Washington; A. BURTON SMITH, Wyoming.

To Fort Riley, base hospital, from Camp Dodge, Lieut. THOMAS G. MILLER, Philadelphia.

To Hoboken, N. J., base hospital, from Camp Dix, Lieut. DAVID B. HAWKINS, Philadelphia.

To Lancaster, Pa., for duty, and on completion *to his proper station,* from Philadelphia, Lieut. CHARLES S. MILLER, Philadelphia.

To report by wire to the commanding general, Eastern Department, for assignment to duty, Capt. WALTER WEBB, West Chester; Lieuts. ELMER A. HUDSON, Carlisle; JOHN F. RUTHERFORD, Cranesville; EDWIN M. McCONNELL, Grove City; HARRY G. HASSENPLUG, Lancaster; ELMER N. PIPER, New Kensington; WALTER J. CATHRALL, North Bethlehem; JOHN E. MOORE, HOWARD REED, SAMUEL M. WILSON, Philadelphia.

To Richmond, Va., for duty, from Fort Oglethorpe, Capt. WILLIAM E. KRAMER, Pittsburgh.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Capt. EARL H. PERRY, Washington. For instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Meade, Capt. SAMUEL R. SKILLERN, Philadelphia. On completion *to Walter Reed General Hospital* for temporary duty, Capt. RICHARD BRENNENMAN, Pittsburgh.

To Vancouver Barracks, Wash., for duty, from Markleton, Lieut. URBAN H. REIDT, Westmoreland.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, and on completion *to his proper station,* from Lakewood, Capt. ROBERT J. HENDERSON, Bowmansville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. OCTAVUS PEARL LARGE, FRANCIS A. STILES, Philadelphia; WILLIAM H. M. IMHOFF, Willow Grove.

Porto Rico

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. MARIANO B. CABALLERO, Humacao.

To Camp Las Casas, San Juan, P. R., for duty, Lieut. JUAN S. MARCHAN, Barceloneta.

Rhode Island

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capt. WINTHROP C. LINCOLN, Lieut. JOSEPH W. BANNAN, Providence.

To Fort Oglethorpe for instruction, Lieuts. ARTHUR J. GAGNON, HENRY J. GALLAGHER, Providence.

To Rockefeller Institute for instruction in the treatment of infected wounds, from New York, Capt. HERMAN C. PITTS, Providence.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. ALFRED F. McALPHINE, Providence.

South Carolina

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Boston, Lieut. JOHN D. COLSON, St. Stephen.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. MILTON WEINBERG, Sumter.

To Fort Oglethorpe for instruction, Lieut. WILLIAM R. HAYNIE, Belton.

South Dakota

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. OSCAR W. TULISALO, Bellefourche.

To Fort Riley, base hospital, Lieut. DICKNEY W. CRAIG, Sioux Falls.

To Fort Sill, Okla., base hospital, Capt. BYRON A. BOBB, Mitchell.

To Hoboken, N. J., base hospital, Lieut. WILLIAM A. DELANEY, Mitchell.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. FRANCIS E. TOWNSEND, Nisland.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. FLOYD D. GILLIS, Mitchell.

Tennessee

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. BARNEY L. McDONALD, Idol.

To Camp Crane, Allentown, Pa., base hospital, from Camp Meade, Lieut. CHARLES P. EDWARDS, Kingsport.

To Camp Grant, Rockford, Ill., base hospital, from Rockefeller Institute, Lieut. JOHN F. BINKLEY, Nashville; from Camp Greene, Lieut. JOSEPH M. CLARK, Spring City.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. JOHN H. REVINGTON, Chattanooga.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Lieut. WILLIAM A. HOWARD, Cookeville.

To Camp Sheridan, Montgomery, Ala., for duty, from Camp Gordon, Major WILLIAM H. BALDWIN, Memphis.

To Fort Benjamin Harrison for duty, Lieut. JULIUS A. HAIMAN, Nashville.

To Fort Oglethorpe for instruction, Capts. JAMES H. McCALL, Huntingdon; JOHN E. HALL, Nashville; Lieuts. COLMAN C. BURNS, OSCAR M. LATEN, Memphis; SAMUEL C. COWAN, JESSE A. SANDERS, Nashville.

Texas

To Army Medical School for instruction, Lieut. OSCAR T. KIRKSEY, Galveston; from Camp Crane, Lieut. EDMUND D. MILLS, Galveston.

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. JOSEPH E. McDONALD, San Antonio.

To Camp Beauregard, Alexandria, La., base hospital, Capt. ROBERT T. MORRIS, Houston. For duty, from Fort Oglethorpe, Lieut. WILLIAM B. URMSTON, San Antonio.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. ALFRED R. AUTREY, Port Arthur.

To Camp Cody, Deming, N. M., base hospital, Lieuts. EDWARD B. BRANNIN, Dallas; EARL C. AXTELL, Lipan.

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Boston, Lieut. HALL SHANNON, Dallas. For duty, from Camp Grant, Major CHARLES M. AVES, Houston.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. JOSEPH H. HICKS, Elkhart.

To Camp Grant, Rockford, Ill., for duty, Lieut. ALBERT L. MONDRICK, Bryan.

To Camp Jackson, Columbia, S. C., with the board examining the troops for cardiovascular diseases, from Camp Jackson, Capt. LORNE E. HASTINGS, Dallas.

To Camp MacArthur, Waco, Texas, as assistant to camp surgeon, from Fort Sam Houston, Major JAMES G. FLYNN, Galveston. Base hospital, Lieut. MERCER SWEARINGEN, Port Arthur; from Fort Oglethorpe, Capt. HAROLD E. NICHOLSON, Mobeete.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Lieut. JOSEPH J. ANDERSON, Coolege; from Williamsbridge, Capt. IRA E. PRITCHETT, Houston.

To Camp Sherman, Chillicothe, Ohio, for duty, from Camp Greene, Lieut. WIRT D. FOWLER, Liberty Hill.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Capt. JAMES R. GIBBS, Houston.

To Dallas, Texas, for duty, from San Antonio, Lieut. WILLIAM R. JOHNSON, Snyder.

To Fort McPherson, Ga., for duty, from Camp Gordon, Lieut. FREDERIC E. HUDSON, Anson; from Camp Wadsworth, Lieuts. *ROBERT* S. SUTTON, Bartlett; THOMAS P. McCLENDON, Wortham.

To Fort Oglethorpe for instruction, Capt. FERDINAND C. WALSH, San Antonio; Lieuts. WILLIAM C. WEDEMEYER, Burton; EMMETT C. SCHOOLFIELD, Denton; LOUIS G. PAWELEK, Falls City; EDGAR P. HUTCHINGS, Marlin; ASA B. PRITCHETT, San Marcus.

To Fort Riley for duty, from Rochester, Minn., Lieut. EDMUND C. HANCOCK, Temple. For instruction, Capts. JOSEPH A. DENMAN, Belton; JOHN O. McCALL, Brady. ROBERT A. DINWIDDIE, Clarksville; MARVIN De BERRY, Cuthand.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Mineola, Lieut. GEORGE P. RAWLS, San Augustine.

The following order has been revoked: *To Camp MacArthur*, Waco, Texas, as assistant to camp surgeon, from Fort Sam Houston, Capt. LYTTON G. AMENT, Victoria.

Utah

To Camp Cody, Deming, N. M., base hospital, Lieut. WALTER N. PUGH, Salt Lake City.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort McPherson, Lieut. WEAVER A. RUSH, Logan.

To Fort Riley for instruction, Lieut. MAURICE M. CRITCHLOW, Salt Lake City.

Vermont

To Camp Devens, Ayer, Mass., base hospital, Capt. BENJAMIN D. ADAMS, Burlington.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. HARRY H. LAWRENCE, Springfield.

T , *N. Y.*, base hospital, Lieut. CHARLES N.

To Fort Leavenworth, Kan., for duty, Lieut. ALLSTON L. FOGG, Underhill.

To Fort Oglethorpe for instruction, Lieut. CHARLES W. KIDDER, Woodstock.

To Newport News, Va., for duty, from Lakehurst, Lieut. LEONARD B. ROWE, Orwell.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Lieut. HENRY L. TILLOTSON, Groton.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ALBERT J. GREENWOOD, Springfield.

Virginia

To Camp Meigs, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. ROSCOE F. THORNHILL, Richmond.

To Fort Oglethorpe for instruction, Lieuts. EVERETT R. ALTIMER, Cambria; RANDOLPH G. BROADDUS, Chance; STANHOPE B. BERKLEY, Grafton; GOODLATTEE V. GILMORE, Hampton; STUART D. WILLIAMS, Norfolk; EDWARD T. AMES, Painter; MASON ROMAINE, Petersburg; JOHN S. GILMAN, Richmond; WILLIAM T. GAY, OSCAR R. YATES, Suffolk.

To Hoboken, N. J., for duty, from Camp Dix, Major SAMUEL B. MOORE, Alexandria; from Fort H. C. Wright, Lieut. NATHANIEL F. RODMAN, Norfolk.

To New Haven, Conn., for duty, Capt. ALBERT G. FRANKLIN, Richmond.

To Plattsburg Barracks, N. Y., for duty, from Fort McPherson, Capt. CLAUDE D. KELLAM, Norfolk.

Washington

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. ROSCOE L. GHERING, Spokane.

To Camp Lewis, American Lake, Wash., base hospital, Capt. ARTHUR C. JOHNSON, Spokane.

To Fort McPherson, Ga., for duty, from Camp Lewis, Major HORACE J. WHITACRE, Tacoma; Capt. PAUL I. CARTER, Port Townsend.

To Fort Riley, base hospital, from Camp Lewis, Capt. CHARLES S. WILSON, Tacoma. For instruction, Lieut. WILLIAM E. STEELE, Olympia.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fort Riley, Capt. CLINE F. DAVIDSON, Seattle.

To San Francisco, Calif., for instruction, and on completion *to Camp Cody*, Deming, N. M., base hospital, Capt. GEORGE A. GRAY, Spokane. On completion *to Camp Lewis*, American Lake, Wash., base hospital, Lieut. STEPHEN A. DEMARTINI, Tacoma.

West Virginia

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. JOHN E. MILLER, Widen.

To Camp Hancock, Augusta, Ga., base hospital, Capt. KARL C. PRICHARD, Huntington.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. THURMAN E. VASS, Bluefield.

To Fort Oglethorpe for instruction, Capt. EDWARD McELFRESH, Point Pleasant; Lieut. HAMLINE N. DEEM, Lubeck.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. ISAAC R. LESAGE, Huntington.

Wisconsin

To Army Medical School for instruction, Lieut. EDGAR W. ALBERS, Milwaukee.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. BRAND STARNES, Mauston.

To Camp Devens, Ayer, Mass., for duty, from Camp Grant, Lieut. EDMUND H. MENSING, Milwaukee.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Crane, Lieut. CHARLES B. RYDELL, Superior.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. JOHN R. SHEEAN, Milwaukee.

To Camp Sevier, Greenville, S. C., for duty, from Fort Oglethorpe, Lieut. ADAM L. CURTIN, Milwaukee.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. FREDERICK J. KORTHALS, Milwaukee.

To Fort D. A. Russell, Wyo., for duty, Lieut. ALBERT J. PULLEN, North Fond du Lac.

To Fort Des Moines, Iowa, base hospital, from Camp Zachary Taylor, Lieut. ERNEST L. HENNIG, Beloit.

To Fort Oglethorpe for instruction, Lieuts. HERMAN C. MEYER, LaCrosse; OTIS W. C. MAERCKLEIN, GEORGE G. WALL SCHLAEGER, Milwaukee.

To Fort Riley for instruction, Lieut. CLAUDE H. OLIVER Boyceville.

To Jefferson Barracks, Mo., for duty, from duty as a contract surgeon, Capt. LOUIS M. WARFIELD, Milwaukee.

To New Haven, Conn., for duty, Capt. FRANK BROCKWAY, Oshkosh.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. THOMAS W. NUZUM, Janesville, WILLIAM A. EDWARDS, LaCrosse; FRANCIS J. DONNELLY, Meaches; EDGAR J. KNAPP, Rice Lake.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Personal.—Dr. William P. Hunnicutt, superintendent of the State Hospital for the Insane, Pueblo, has resigned. His resignation will take effect immediately. Dr. Hunnicutt will practice in Pueblo.——Dr. Charles H. Burgin, Delta, was operated on for appendicitis in the Red Cross Hospital, Salida, June 30, and is reported to be doing well.

Health Association Meeting.—At the annual meeting of the Colorado Public Health Association, held in Denver, July 10, the following officers were elected: president, James H. Pershing, Denver; vice presidents, Drs. Charles O. Giese, Colorado Springs; Richard W. Corwin, Pueblo, and Oscar M. Gilbert, Boulder, and treasurer, Charles S. Haughwout, Denver.

CONNECTICUT

Personal.—Dr. Henry N. Costello, Hartford, has been appointed medical examiner (coroner) for the Hartford district, succeeding Dr. Phillip D. Bunce, Hartford, who has entered the military service.——Dr. Henry F. Gill, Hartford, is reported to have been adjudged insane.

Progress in Yale University Medical School.—During the past year Yale University has raised the endowment of $2,000,000 which secures an additional half million from the general education board for the purpose of putting on the full-time clinical basis, the departments of medicine, surgery, and obstetrics and gynecology. Of this sum, $250,000 was given by the Carnegie Corporation. While it will not be possible during the war to completely organize the clinical departments mentioned this will be done as far as is possible. The contract with the New Haven Hospital has been amended so as to give the medical school complete control of the public wards. The organization of the New Haven Hospital has been altered as the result of recommendations made by Col. Winford H. Smith, Baltimore, after a survey. A closer affiliation between the Connecticut Training School for Nurses and the medical school has been brought about.

FLORIDA

Health Officers' Meeting.—State Health Officer William H. Cox, Jacksonville, has called a conference of health offiicers of the state, to be held at Jacksonville, August 1 to 3.

Personal.—Dr. William M. Bevis, Chattahoochee, has been appointed superintendent of the Florida Hospital for the Insane, succeeding Dr. H. Mason Smith, who has been called into the military service.——Dr. Van H. Gwinn, Jacksonville, has been appointed assistant state health officer.——Dr. Peter W. Butler, Leesburg, is reported to be critically ill at his home in Madison, Ga.

GEORGIA

Eugenic Marriage Bill Passed.—The eugenic marriage bill, requiring a man to present a certificate of health before the issuance of a marriage license, was unanimously passed by the state senate, July 10.

Association Headquarters Changed.—The headquarters for the Medical Association of Georgia together with the offices of the journal of the association have been removed from Augusta to 105 Capitol Square, Atlanta.

District Society Meeting.—The annual meeting of the Twelfth District Medical Society was held in conjunction with that of the Laurens County Medical Society at Dublin, July 10. A barbecue was given for the society at Spivis Park, and the following officers were elected: president, Dr. John K. Malloy, Milan; vice presidents, Drs. C. F. Walker, Swainsboro, and William R. Brigham, Dublin, and secretary-treasurer, Dr. Jason H. Moore, Dublin. It was decided to hold the semi-annual meeting with the Telfair Medical Society at McRae, in January.

ILLINOIS

To Uplift East St. Louis Status.—Dr. Grant L. Taylor, Bluford, supervisor of military zones in Illinois, conferred with Dr. Samuel S. Winner, Chicago, and local health authorities to bring East St. Louis up to military requirements. After a careful examination several of the cards placed on immoral houses where venereal diseases were suspected were removed and only six such placards remain.

Women's Clinics to Open.—The women's committee has granted to the Social Hygiene Committee of the State Council of Defense $100 a month for six months to employ a competent woman physician for clinics three times a week in connection with the Red League Dispensary. Dr. Pearlie M. Stetler, Chicago, has been secured and clinics will be held Wednesdays and Saturdays from 11 to 1, and Fridays from 6:30 to 8:30.

Personal.—Dr. Frank P. Norbury, Jacksonville, has been called to New York to serve for six months as acting medical director of the national committee for mental hygiene in war work, in cooperation with the office of the Surgeon-General.——Dr. James M. Hancock, Chicago, who accidentally suffered the loss of an eye in a pistol duel between the police and a number of bandits, in February last, has made a plea before the council finance committee for $25,000 damages.——Dr. Heber Robarts, Belleville, suffered the amputation of the index finger of the left hand, July 12, because of an infection following the handling of radium.

MICHIGAN

Personal.—Dr. Slocomb R. Edwards, Calumet, has resigned as oculist and aurist to the Calumet and Hecla Mining Company and has also withdrawn from his association with Dr. John G. Huizinga, Grand Rapids, and has located at Stockton, Calif.——Dr. John W. C. Fleming, Pewamo, is said to have pleaded guilty for failure to report a case of chickenpox and to have been fined $15.

Tuberculous Soldiers.—The state war board has set aside about $21,000 for the treatment of tuberculous soldiers. The two pavilions built at Howell to receive tuberculous children, but which had not been opened on account of the lack of funds, have been set aside for soldiers. The money appropriated will be used for furnishing and equipping the pavilions, for supplying the additional help required, and for maintaining about forty beds for a minimum period of about twenty-five weeks.

MINNESOTA

Memorial to Colonel Todd.—The administrative board of the University of Minnesota School of Medicine, July 6, adopted a memorial to Lieut.-Col. Frank C. Todd, N. A., who died in Chicago, recently. Colonel Todd was a graduate of three colleges of the university and head of a department in the School of Medicine.

Health Organizations Merged.—At the meeting held, July 9, in St. Paul, by the Minnesota State Board of Health, Minnesota Public Health Association and the state advisory commission, resolutions were passed constituting the presidents of each of these bodies a permanent committee to be called the Minnesota Joint Health Committee, to correlate the work of these three organizations.

Personal.—Dr. Herbert O. Collins, city physician of Minneapolis and superintendent of hospitals, resigned, July 16, to become superintendent of the General Hospital, Winnipeg. The vacancy will be filled by civil service examination.——Drs. Jennings C. Litzenberg and Julius P. Sedgwick, Minneapolis, have been appointed members of the advisory committee of the newly created division of child conservation in the state board of health.——In the suit, brought in behalf of Willard Henningsen Dalsgaard by his father in which $10,000 damages were claimed on account of injuries received by the infant shortly after birth by reason of the physician's negligence, the jury is said to have awarded the plaintiff damages of $1,750.——Dr. Harvey F. Rawlings, of the staff of More Hospital, Eveleth, who was operated on for appendicitis last month in St. Joseph's Hospital, St. Paul, has recovered and has returned home.

MONTANA

Health Officers Meet.—At the annual meeting of the Montana State Health Officers' Association held in Butte, July 8 and 9, under the presidency of Dr. Lawrence Stevens, Laurel, Dr. Patrick H. McCarthy, Butte, was elected president, Dr. George A. Lewis, Roundup, vice president, and Dr. William F. Cogswell, Helena, secretary.

Personal.—Dr. John H. Phillips, Butte, sustained painful contusions of the chest and other injuries by the overturning of an automobile, July 6, and is under treatment in St. Peter's Hospital, Helena.——Dr. James E. Elliott, Bozeman, has been appointed health officer of Gallatin County, succeeding Dr. Herbert H. Judd, Bozeman, who has entered the military service.

State Society Meeting.—The fortieth annual meeting of the Montana Medical Association was held in Butte, July 10 and 11. Missoula was selected as the place of meeting for 1919, and the following officers were elected: president, Dr. Edward W. Spottswood, Missoula; vice presidents, Drs. Charles C. Wallin, Lewistown; Albert R. Varco, Miles City, and Alfred Karsted, Butte, and secretary-treasurer, Dr. Elmer G. Balsam, Billings. It was announced that there are 551 physicians in the state, 159 of whom have entered the government service.

NEW YORK

Health Insurance in Political Program.—The labor league of New York City is preparing to take a definite stand in the coming fall campaign to insure the welfare of its members and their fellow workers in New York state. In the program prepared for presentation at the Republican convention this organization comes out definitely as favoring the establishment of state-administered health insurance and the creation of a bureau of sickness prevention and health protection within the state labor departments; for the erection and maintenance of a tuberculosis sanatorium in each county, with county management and state supervision, and for old age pensions for citizens who at 60 years of age are without incomes and have been residents of the state for twenty-five years.

Child Health Organization.—A group of specialists in children's diseases met some time ago in the New York Academy of Medicine and organized a committee on the war-time problems of childhood. After a study of the problems involved the need of a larger organization was demonstrated. The matter was referred to Secretary Lane of the Department of the Interior who urged the formation of a national committee. As there are already so many organizations in existence working on these lines it was decided that this committee should be affiliated with the National Child Labor Committee. Accordingly an organization to promote the health of schoolchildren has been formed as one of the branches of the child labor committee. The program of this committee as outlined includes the following lines of activity: 1. To teach health habits to children and to secure adequate health examinations for all children in the public schools of the country. 2. To consider the urgent problem of malnutrition among schoolchildren. 3. To safeguard the health of children in industry. 4. To awaken the public to the necessity of conserving the health of schoolchildren as a basis of national security and stability. 5. To promote or cooperate with other bodies in securing legislation for the attainment of these objects. Among those on the executive committee are Dr. L. Emmett Holt, New York; Dr. Samuel McC. Hamill, Philadelphia; Dr. Godfrey R. Pisek, New York; Dr. Victor G. Heiser, New York, of the United States Public Health Service; Dr. Bernard Sachs, New York, and Dr. Thomas D. Wood, New York. The headquarters of the committee are at 289 Fourth Avenue, New York.

New York City

German Hospital Changes Name.—The German Hospital Society of Brooklyn has unanimously voted to change the name of the German Hospital of Brooklyn to the Wyckoff Heights Hospital.

Personal.—Dr. Abraham Jacobi has been unanimously elected honorary president of the Friends of German Democracy. He was honorary chairman of the German Unit in the Fourth of July parade. This is an organization of Americans of German descent who favor the destruction of the Hohenzollern rule in Germany.

Clinic for Disabled Soldiers and Sailors.—A clinic for the functional reeducation of disabled soldiers, sailors and civilians was opened at 5 Livingston Place, July 15. This clinic has been equipped through private subscriptions and is affiliated with the Cornell University Medical College. Students will be instructed in the methods which have so far been developed through the war as to constitute a new branch of medicine. Beds for thirty patients are provided in the hospital and many others can attend the clinic daily for treatment. The buildings have been leased from the New York Infirmary for Women which has suspended operation temporarily. Dr. W. Gilman Thompson is director of the clinic. Treatment will be free for those unable to pay, but hospital patients referred by the city authorities or by accident insurance companies and the War Risk Insurance Bureau will pay for board, operations or treatment.

OHIO

Conservation of Nurses.—The Council of the Ohio State Medical Association at its quarterly meeting, June 30, in Columbus, adopted resolutions urging all physicians to economize in their demands in the nursing profession so that more nurses may be spared for foreign service under the American Red Cross. The council also voted unanimously to place at the disposal of the Surgeon-General its entire resources and to give government work preference over all other association activities.

Personal.—Drs. Fannie C. Hutchins, Cleveland; Nora Crotty, Cincinnati, and Eleanora S. Everhard, Dayton, have been appointed members of the medical section of the Ohio War Council.——The Common Pleas Court of Franklin County has ordered Dr. William H. White, Columbus, reinstated as medical examiner for the state industrial commission.——Dr. Bushnell R. Reynolds, Greenwich, has been appointed coroner of Huron County, succeeding Dr. Clement L. Bell, Fitchville, resigned to enter the military service.——Dr. Clarence W. Goss, Lancaster, who has been suffering from tuberculosis for several months is reported to be critically ill.——Dr. Robert H. Bishop, Jr., Cleveland, has resigned as health commissioner of Cleveland to take part in the Red Cross Antituberculosis Campaign in Italy. Dr. Richard A. Bolt, Cleveland, chief of the bureau of child hygiene will succeed Dr. Bishop as health commissioner.

PENNSYLVANIA

Personal.—Dr. Regina M. Downie of Beaver Falls has gone to France with the French Red Cross.——Lieut. David Reynolds Morgan, Edwardsville, has won the French war cross.——Dr. Philip Kamin, Pittsburgh, has succeeded Dr. David L. Simon as police surgeon of Pittsburgh.——Dr. John I. Van Wert, Patton, who has been under treatment in the New York Polyclinic since January 1, has returned home greatly improved.——Dr. Elizabeth Reifsnyder, Liverpool, who is home on an extended leave of absence from Shanghai, China, slipped and fell, while descending a flight of stairs in her home, spraining her ankle and sustaining other injuries.

Philadelphia

Personal.—Dr. Ray R. Willoughby has been appointed assistant medical inspector, bureau of health.——Major James P. Hutchinson, Philadelphia, is now commanding officer of American Red Cross Military Hospital No. 1, at Neuilly, France.

To Give Six Ambulances.—Supplementing their previous gift of four ambulances, the fellowship of the Pennsylvania Academy of the Fine Arts will give six additional machines to the service, the funds for which are to be raised by a campaign just started for that purpose by 600 members of the fellowship. Besides the ambulances, the fellowship has given seventy-four of its members to the service. The names to be given the six new machines are: James MacNeil Whistler, Auguste Rodin, Earl Kitchener, Cardinal Mercier, Admiral Sims' Fleet and General Pershing.

Byberry Buildings for Base Hospital.—Five large structures, including an administration building and four dormitories, forming the group of buildings now under construction for the use of the city's insane, at Byberry, have been tendered by the city, through Mayor Smith and Director Wilmer Krusen, of the department of health and charities, to the government as a military base reconstruction hospital. The offer was made by Director Krusen while in Washington on Thursday and was accepted by the Surgeon-General. The five buildings in question are surrounded by a tract of land containing about 200 acres. The four dormitory buildings will have accommodation for about 800 patients, but with a little adjustment the capacity can be increased to 1,000. Each building is about 50 per cent. completed, and fully 95 per cent. of the materials for finishing the structures is now on the ground. The cost of this particular group of buildings is $1,250,000. It was arranged at the conference that the Surgeon-General will cooperate through the vocational board of the Army, and that the personnel of the base hospital will be under the supervision of the Surgeon-General.

TENNESSEE

New Branches of Hospital.—The extensive improvements planned for the Knoxville General Hospital include three new departments, a contagious disease section, a maternity ward, and a children's department.

Licenses Revoked.—The licenses of Drs. Ben Friedman, Memphis; Warren S. Webb, Memphis, and A. L. Saunders, to practice medicine in Tennessee are said to have been revoked by the state board of medical examiners.

Service Flag Dedicated.—Memphis and Shelby County Medical Society dedicated its service flag, July 16, with appropriate ceremonies. The presentation of the flag was made by Dr. James L. Andrews, Memphis, and the address of acceptance by Dr. John L. Jelks, Memphis, president of the society. The flag bears seventy-nine stars.

WISCONSIN

State Board Election.—At the meeting of the state board of health at Milwaukee, June 26, Dr. George H. Ripley, Kenosha, was elected president, and Dr. John M. Dodds, Ashland, secretary.

Personal.—Dr. Albert M. Benson, Hartford, has been chosen state field agent of the Wisconsin Humane Society.——Dr. Anne I. M. Reed has been appointed senior physician of the Muirdale Sanatorium, Wauwatosa, in order to permit the release of Dr. George Allen for the military service.——Dr. Bartholomew Bantley, Hot Springs, S. D., has been appointed first assistant surgeon of the Northwestern Branch of Homes for Disabled Soldiers, Milwaukee.

Public Health Instructors.—For the last three years the Wisconsin Anti-Tuberculosis Association has been conducting courses for the instruction of public health nurses, admitting to these courses of instruction graduates of recognized training schools and supplementing their nurse's training by special work in public health service. More than fifty nurses have taken these courses and the communities into which they have gone have come to look to the Wisconsin Anti-Tuberculosis Association to supply them with competent health workers. The needs of the military service have drawn numbers of these nurses from community work and the positions left vacant by them have largely been left unfilled. The experience gained through conducting previous courses has shown that for the training of nurses as public health workers, the duties of the social worker, in her contact with the individual family and with the public, needed especial emphasis, and in the planning of the various departments of instruction for the new type of worker, this need has been constantly borne in mind. It has therefore been decided to train a new type of worker who will be termed a health instructor. The health instructor will not be a nurse, for it is evident that to give instruction in the principles of hygienic living, in the methods of preventing and avoiding tuberculosis, in inspecting schoolchildren, or in advising mothers as to the care of infants, training in the technic of bedside nursing is not indispensable; neither will she be a teacher as that term is usually understood. The health instructor will be an individual combining the functions both of the public health nurse and of the teacher in the schools. She will be trained in the fundamentals of social service and after much the same manner that nurses have been given this same instruction in previous courses conducted by the Wisconsin Anti-Tuberculosis Association. In order to provide the most thorough instruction possible, the first class is being limited to fifteen in number. It is the expectation of the Wisconsin Anti-Tuberculosis Association that through this course of training, health instructors competent to do the work now being done by the public health nurse, and with a widened view and greater scope of understanding because of her teaching experience, can be prepared in a year's time, thus saving two of the three years necessary in a nurses' training, and at the same time, release the graduate nurse for her most important duty which demands a longer and more technical training.

CANADA

Hospital News.—By the will of a Mr. Ramsay, resident in Scotland, but who formerly had large financial interests in Toronto, the hospitals in Toronto and other public charities in that city will benefit to the extent of $750,000.——McGill University Hospital at Étaples, France, is to be removed to England, as it has been bombed from German airplanes on several occasions.——The Province of Alberta has appropriated $218,000 for hospital purposes in that province during the present year. There is a proposal on foot for the establishment of a tuberculosis sanatorium in the province to be built conjointly by the Dominion government and the Alberta government at a cost of $400,000.——Sir Adam Beck has presented to the Byron Sanatorium, London, Ont., a nurses' residence costing $30,000, in grateful appreciation of the recovery of his only daughter from a very severe illness.

Personal.—Col. Arthur E. Ross, M.D., M.P.P., exmayor of Kingston, Ont., who has been deputy-director of medical services for the Canadian Expeditionary Forces in France, is to be made chief medical officer of the Fifth Canadian Division with the rank of major-general. Recently the British authorities preferred a request for the services of Colonel Ross as director of medical services of one of the British armies in France.——Dr. Ernest A. Hall, Victoria, B. C., has offered to supply the Royal Jubilee Hospital of that city with his own electrical equipment and has also undertaken to supply a medical electrical expert for half a day per week free of charge. This is for the treatment of returned soldiers.——Sir Edward Scott Worthington, a graduate of Trinity Medical College, Toronto, 1897, has been created a Knight Commander of the Royal Victorian Order. From 1899 to 1902, Dr. Worthington served in the South African War, was physician to the Duke of Connaught when governor-general of Canada. He went to the front in 1914.——Dr. C. E. Edgett, Western Canada, has received the D.S.O.——Major Charles Woolard has succeeded to the command of the Vancouver, B. C., military hospital, Col. Charles E. Doherty, New Westminster, B. C., having resigned.——Major A. D. Macdonald, Victoria, B. C., is now deputy commandant and assistant director of medical services of the Invalid Soldiers' Commission in British Columbia, with headquarters in Vancouver.——Lieut.-Col. J. Alexander Hutchison, Montreal, is now consulting surgeon of the Canadian Army Medical Corps, succeeding Col. George E. Armstrong, Montreal.——Major John S. Matheson, Brandon, Manit., senior medical officer at the Canadian Clearing Station at Buxton, England, has gone to France to the No. 3 Canadian Hospital at Étaples.——Capt. Henry Clinton Pearson, C. A. M. C. (Toronto), H. Tozer and E. M. Osborne, C. A. M. C., London, Ont., are reported wounded.

GENERAL

National Dental Association.—This association is to hold its twenty-second annual session in Chicago, August 5 to 9. At the general session of the second day—August 6—addresses will be delivered by Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army, on "Consideration of Some of the Important Changes That Have Been Made in the Medical Department of the United States Army During the Past Four Years"; by Brig.-Gen. Robert E. Noble, on "The Surgeon-General's Plan for Maintaining the Health of Our Soldiers," and by Lieut.-Col. Horace D. Arnold, on "The Benefits to the Medical Profession and Schools from Higher Educational Standards." Col. Charles H. Mayo, Rochester, Minn., also will address the meeting.

Resolution on Antinarcotic and "Soft Drink" Regulation.—On July 13, Senator Frelinghuysen submitted the following resolution, which was ordered to lie over under the rule, and referred to Committee on Contingent Expenses:

Whereas, It is openly charged by scientific men and statisticians that the use of narcotic and habit-forming drugs is largely on the increase, not only in the form of opium, morphin, cocain, heroin and kindred opiates, but also certain so-called "soft drinks" charged with caffein, sold at innumerable fountains to our young men and young women; and

Whereas, It is alleged that in the neighborhood of many of our military camps purveyors of these deleterious drugs are to be found, stealthily engaged in the sale of the same to our soldiers; and

Whereas, Certain caffein-charged "soft drinks," so called, notoriously injurious to health, are openly sold to men in uniform; and

Whereas, Not only is the morale of soldiers and of our young men and young women in general sensibly lowered by the prevalence of this habit; and

Whereas, It is estimated that the actual money loss to the nation, by reason of this state of affairs, amounts to hundreds of millions of dollars annually; and

Whereas, The economic loss in wasted lives, in sickness, loss of wages, accidents, incapacity and crime, *probably* aggregates hundreds of millions of dollars additional; and

Whereas, The existence of this evil has a demoralizing effect upon the efficiency of our Army, to a degree not appreciated by the general public: therefore, be it

1. *Resolved by the Senate and House of Representatives of the United States of America in Congress assembled,* That the President of the United States be, and he hereby is, authorized to appoint a commission of citizens of the United States, not exceeding three in number, to make inquiry into the subject of narcotic and habit-forming drugs.

2. The said commission shall investigate the causes which lead to the use of such drugs, the extent of the use of such drugs and the kinds of drugs used, and shall also investigate the subject of the drug addict and such other factors as in its judgment have *an important* bearing upon the use of narcotic and habit-forming drugs, and shall recommend to the President the best methods in its judgment of regulating the importation, manufacture, sale and use of *narcotic* and habit-forming drugs, and of solving the problem presented by the drug addict.

3. The said commission shall report to the President on or before the convening of the next Congress, which report shall be transmitted by the President to Congress. The said commission shall select from its members a president and secretary, and shall meet at such places in the United States as it may deem advisable, and it shall have the power to subpoena witnesses and employ necessary assistants, provided the total expenditures under this resolution shall not exceed $50,000, and that all actual expenses shall be approved by the President of the United States, and he shall fix the amount of compensation to be paid each commission.

4. The sum of $50,000 be, and it is hereby, appropriated for the purpose above indicated.

FOREIGN

Death of Lesser.—The *Correspondenz-Blatt* states that Prof. E. Lesser, the Berlin dermatologist, director of the service for skin and venereal diseases at the Charité, died, June 6, aged 66. In the nineties, he was professor for four years at the University of Bern, Switzerland. Among his other works, his manual on skin and venereal diseases is perhaps the best known. It has passed through numerous editions.

Typhus and Influenza in Spain and Portugal.—The *Medicina Contemporanea* relates that there were only 159 cases of typhus at Oporto in the week ending June 8, which is a little larger figure than that of the preceding week but still represents a gradual decline of the epidemic. There had been no cases at Lisbon since May 29. The epidemic of influenza at Madrid is said to have attacked 200,000. It has appeared in other cities and in Portugal. The three day course of the fever seems to be the universal type. Certain medical students at Madrid have appealed to have another chance given them for examination as their examinations fell just at the time when they were all sick with the influenza; their request is said to have been granted.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

South American Society for Hygiene, Microbiology and Pathology.—The second conference of this organization is to be held at Rio de Janeiro in September. The first met at Buenos Aires and Oswaldo Cruz was chosen as the president. Prof. Miguel Couto has been appointed to the vacancy left by the death of Dr. Cruz.

Deaths.—Dr. **J. T. Henao**, a leading physician of Bogota, Colombia, member of the house of representatives where he served on the committee for public instruction.——Dr. **C. Wallau**, director of the surgical clinic at Porto Alegre, Brazil, honorary member of certain foreign surgical associations and author of works on surgery and neurology.

Eugenics Society Organized at São Paulo, Brazil.—The leading physicians of São Paulo have organized a society to study questions of heredity and means to improve the human race. Its aims and purposes are set forth in an eight-page pamphlet, especially emphasizing the aim to enlighten and educate the public in matters relating to hygiene and eugenics, for the welfare of the individual, of the community and of future generations. The questions of the regulation of prostitution and physical examination of candidates for matrimony are also to be thoroughly studied.

Brazil Introduces State Quinin Service.—The *Brazil Medico* reports that the president of the republic has signed the bills appropriating 400,000 milreis for an "official service of quinin" in prophylaxis of malaria—"necessary for the sanitation of Brazil," and providing for the "organization of commissions of physicians and their aids to initiate the service of rural prophylaxis, combating the endemics which ravage the interior of the country." The president calls on every Brazilian to aid in this great campaign against endemic diseases in general. The success already attained in eradicating yellow fever in Rio, augurs well for the success of the new drive. That it has not been started before, he says, is due to financial reasons. Prof. M. Pereira aroused the country with his cry, "Brazil is a vast hospital," and the movement for prophylaxis on an extensive scale was soon inaugurated and this important step taken.

CUBA LETTER

Havana, July 15, 1918.

The Epidemic of Influenza

During the past month, nearly one fourth of the population of Havana was taken ill by an epidemic of a disease similar to the grip. The disease begins suddenly with high temperature, headache and backache, and lasts from three to five days, leaving in most cases a pronounced weakness. Other features are the lack of catarrhal symptoms, the discordance between pulse and temperature and the complete recovery, not a single fatal case being recorded. This condition is not a typical attack of the grip, and while most physicians think it is a mild and unusual form of this disease, others believe it to be the dengue or the three day fever. Dr. Guiteras states that three day fever is transmitted by a fly, the *Phlebotomus papatassii*, which has not been found in Cuba. Every one asks if this is the same disease that appeared in Spain not long ago and if it might have been brought to this country in the Spanish steamers.

Oldest Market in the City Closed

The secretary of sanitation has ordered the evacuation and demolition of the Plaza del Vapor, the oldest market in Havana, its sanitary conditions being very poor. A new temporary market has been opened in the old grounds of the Villanueva Railroad station.

Deficiency of Water Supply

The city of Havana enjoyed until a few years ago the privilege of having one of the finest spring waters in the world. The canalization of the springs of Vento was built in 1889 by Albear, a Spanish engineer; since then the population of Havana has increased from 200,000 to nearly 600,000, and therefore the necessity of more water is very badly felt. In many quarters of the city water does not reach the houses during certain hours, and the pressure is so low that seldom does the water reach the second floor without some pumping device. The shortage of water is becoming a serious problem, and the department of public works is being urged by the sanitary authorities and by the press to increase the supply by utilizing new springs that exist near Vento.

Personal

Dr. J. A. Simpson has been appointed to fill a vacant chair in the Academia de Ciencias.

Dr. B. Saenz has been appointed professor of dermatology of the University of Havana.

Dr. V. Pardo-Castello has been appointed chief of the department of dermatology and syphilology of the Municipal Hospital.

Death of Dr. Sanchez-Toledo

Dr. Miguel Sanchez-Toledo, professor of physiology at the University of Havana, died at his home, July 13.

BUENOS AIRES LETTER

Buenos Aires, June 10, 1918.

The State University System

There has been considerable agitation in university circles of late on the long debated question of the reform of the system of government of the different departments of the universities. University instruction is given exclusively by the state, and there can be no independent universities. The system previously in force at Buenos Aires was modified in 1916, and in 1918 a similar change was effected at the University of Cordoba. Before this the government of the different departments was vested in the department itself, and the faculty elected its own members, and the election was for life. The different faculties of the university were represented in a superior council by two delegates and the dean. The faculties held no scientific meetings and limited their work to administrative functions. This undemocratic system elicited protests which culminated in a strike of the student body in Buenos Aires (1906), and this year in Cordoba. The regulations of the universities were modified in consequence. The principle was established that the faculties (*las Academias*) are henceforth to be exclusively scientific bodies, while the administration and the government of the whole university is entrusted to a representative board the members of which are to be elected by the titular professors and serve for four-year terms.

The agitation for reform has not been satisfied with these measures, especially as there are now considerable numbers of supplementary professors teaching complimentary courses. The reform movement demands still more democratic innovations. The principal bases for the various plans proposed for adoption are (1) a limited term and limitations to reelection of the rector of the university and the deans of the faculties, and they are to be elected at an assembly of all the professors. Some of the projects would give the vote in this matter to alumni who are not professors. (2) The executive board to be elected by all the professors without discrimination, with provision that the titular professors should outnumber the others. (3) Some of the projects call for a representation of the student body in the deliberations and vote.

A large number of projects have been drawn up by university advisers, groups of professors, faculties, etc., and they are to be discussed by the Consejo Superior Universitario, after consulting with the various faculties, at a meeting scheduled for June 16. The University of La Plata has already introduced the larger part of these reforms, although this university has no medical department, but has recently organized a preparatory medical course (to relieve the overcrowding at its sister university at Buenos Aires, only 37 miles distant).

The Campaign Against Tuberculosis

The financial means for combating tuberculosis are relatively deficient, not at all proportionate to the sums spent for the care of the insane. Various institutions and organizations have been conducting propaganda to increase the resources destined to combat this plague. Among others may be cited the *Revista Medica del Rosario*, which now publishes a special supplement devoted to and entitled "Prophylaxis of Tuberculosis." The circumstance that the president of the Liga Argentina contra la Tuberculosis, Dr. G. A. Alfaro, has been appointed president of the Departamento Nacional de Higiene signifies that important modifications are about to be realized. As one of the first steps it has been decided to create a special section for the study of this disease. The national government has imposed a 20 per cent. tax on the price of the tickets for the Loteria Nacional de Beneficencia and this additional amount is to be applied to the expenses of the campaign against tuberculosis. It is estimated that this will produce a revenue of more than two millions annually.

LONDON LETTER

London, June 25, 1918.

The Cause of the War

Though the evidence that Germany planned the war and prepared for it for many years was complete even before the revelations of her ambassador in England, Prince Lichnowsky, yet, with incredible mendacity, German writers from the highest downward have always represented it as defensive. It may be remembered that soon after the outbreak the leading German scientists to the number of about 100, including Ehrlich, issued a manifesto to the world proclaiming the innocence of Germany. What their real opinions were one has no means of knowing, as they were evidently "mobilized" by the government to make this declaration. This is, of course, a purely political subject; but it has a special interest for physicians in view of a memorandum just published in the *Times* by the distinguished physiologist, Prof. C. S. Sherrington of Oxford. He made it at the time of a remarkable conversation with the theologian Professor Troeltsch, then prorector of the University of Heidelberg, Aug. 16, 1907. The memorandum shows that Professor Troeltsch said, "Great conflicts which arise when an old world power is destroyed by a new one must always be accompanied by many sad events—the war between Germany and England will be a matter of regret to me, although I recognize it to be a necessity." On being asked why war should be a necessity since no one in England thought of making war on Germany, Professor Troeltsch replied: "The war is a necessity for Germany because England has so much that it is absolutely necessary for Germany to possess in order to fulfil her rôle as a world state." Being asked what were the possessions which Germany so much desired, Professor Troeltsch said: "Ports and colonies in many parts of the world: Australia, South Africa, Hong-Kong, India. England is not really strong, but there has been no strong power to dispute these great sources of wealth with her. These sources of wealth must fall to a new world power, and that is clearly Germany." Professor Sherrington objected that "the age is gone by when one believed that prosperity for one European nation could be achieved by its spoliation of another." Professor Troeltsch relied that "for Germany it was not merely a question of spoliation," and he proceeded: "Our Germans who go to America lose their tie to Germany; in spite of all our government can do, they cease to aid Germany and its future. We live in an epoch when again, as often in past ages, great movements of a people driven to conquest by the necessity for expansion are in progress. And, though I regret the heavy strokes that have to be given, I recognize that for Germany *it is a necessity* and that in fulfilling her destiny she will forward the history of the world. For instance, our work people are the best in the world; they know that, and they know also that their army and their navy are the weapons of blood and steel which can open the world and give them wealth and power as the competent directors of workmen who under their supervision would do more for the world than they would otherwise do. They know they can thus become rich masters themselves." Yet soon after the outbreak of war the Berlin correspondent in his letter to The Journal *referred to the war as* "an attack" on Germany by Russia, France and England!

Women and the Proposed Ministry of Health

A deputation, organized by the National Union of Women Workers, waited on Dr. Addison at the Ministry of Reconstruction to press for the immediate appointment of a ministry of health and to bring to his notice the following resolution, which had been passed unanimously:

> The National Union of Women Workers, *realizing the vital importance* of preserving the lives of infants and young children and of consolidating and improving the health of the whole community, earnestly urges on the government the immediate formation of a ministry of health, presided over by a minister of cabinet rank, and including in both higher and lower administrative posts men and women on equal terms. Further, it urges that this department should eventually comprise within itself the activities of the other central departments dealing with health, and should simplify and coordinate all local machinery concerned with the same subject.

Dr. Addison expressed sympathy with the movement and said he would favor an important share in the work of the central department being allocated to women. As far as the local authorities were concerned, the matter was largely in the hands of the women themselves who should exercise their votes and endeavor to secure the return of suitable women to the local authorities. The extension of the franchise to women would probably lead to increased activity in this direction. The help of women was specially valuable on the housing and health committees. It was due only to the war that further progress had not been made with regard to the formation of a ministry of health.

The Influenza Epidemic

An epidemic of influenza is raging in London and throughout the country generally. It is so prevalent that business is affected and a considerable proportion of the workers are absent from factories, shops, etc. It is the fashion to describe the disease as "Spanish influenza" because it has been heralded by a report of a mysterious epidemic in Spain which is supposed to be influenza. However, influenza is also reported as prevalent in the German army and the symptoms in the present epidemic differ in no way from the usual ones —fever, general aches, and irritation of the conjunctival, nasal and bronchial mucous membranes. The latter is slight and in some cases absent. The disease runs its course to recovery in a few days and is not attended by serious complications. Influenza is by no means a new disease, though when in modern times it first became epidemic in this country in 1889-1890 it was new to the majority of physicians, and was described as "Russian" influenza because it was supposed to have originated in Russia.

PARIS LETTER

Paris, June 27, 1918.

Pupillary Reactions to Severe Shock in War Wounded

According to Dr. Lacroix, who read a paper on this subject at a recent meeting of the Société de chirurgie de Paris, the pupillary phenomena observed in shock occurring in the war wounded are as follows: Immobility of the pupil, persisting no matter how intense the light reflected into it; contraction of the pupil, more marked in nervous shock than in shock incident to hemorrhage, and in the latter instance it may be replaced by dilatation. This, moreover, is encountered in all forms of shock just before death takes place.

Le Comité d'assistance for Tuberculous Soldiers

The Comité national d'assistance aux anciens militaires tuberculeux recently held its annual meeting in the course of which the general secretaries read two reports detailing the work of the committee during the past year. The gross receipts of the *Journée des tuberculeux* exceeded 2,000,000 francs. Nearly 100 dispensaries and half a score of sanatoriums have been established in France. Many of these, following the example of Paris, have provided hospital accommodations for the tuberculous. All of these agencies have assisted a total of about 25,000 invalided tuberculous soldiers and they have instituted prophylactic measures, being assisted in this work by other organizations, notably the American.

The Lariboisière Hospital

At the time of the Courneuve catastrophe, March 15, 1918, when American assistance was given so freely, the personnel of the Lariboisière Hospital displayed exceptional devotion; *therefore this hospital has been awarded the médaille d'honneur* of the Assistance publique.

Swedish Gift to the French Red Cross

The central committee of the French Red Cross has received from Count de Cyldenstolpe, the Swedish minister, 70,000 francs which was raised in Stockholm at a *fête de bienfaisance*. Sweden in that way manifests its sentiments and sympathy for France in its relief work.

Death of Dr. Régis

The death is announced of Dr. Régis, professor of mental diseases at Bordeaux. This chair was established for Dr. Régis in 1913. His work, Précis de psychiatrie, has had several editions. He has also published interesting articles on general traumatic paralysis, the education of the abnormal psychic, the mental state of regicides, insanity in dramatic art, etc. In 1910 Régis was elected national correspondent member of the Academy of Medicine.

Marriages

Col. Matthew A. De Laney, II. C., U. S. Army, in command of the Pennsylvania Hospital Unit on the western front in France, to Miss Elizabeth R. Voltz of Philadelphia, in London, England, recently.

Major Robert Clarence McDonald, M. C., U. S. Army, Englewood Station, Mo., on duty in Kansas City, to Miss Chlora Hortense Charles of Independence, Mo., June 20.

Lieut. William Henry Joseph O'Brien, M. R. C., U. S. Army, New York City, on duty at Camp Shelby, Hattiesburg, Miss., to Miss Helen Isabel Carter, at Brooklyn, April 3.

Lieut. Waverly Stafford Tucker, M. R. C., U. S. Army, to Miss Emma Maude Martin of Newark, N. J., at Chattanooga, Tenn., June 15.

Lieut. Claude A. Frazier, M. R. C., U. S. Army, Knoxville, Tenn., to Miss Nina Frances Toney of Indianapolis, in New York City, June 22.

Lieut. John Ignatius Meagher, M. R. C., U. S. Army, Montclair, N. J., to Miss Jane Hoey of New York City, June 29.

Lieut. Francis Joseph McCauley, M. C., U. S. Navy, Washington, D. C., to Miss Eilleen Berry of Newark, N. J., June 25.

Asst. Surg. Edwin Peterson, U. S. Navy, to Miss Inez Augusta Willson, at St. Thomas, Virgin Islands, June 15.

Joseph William Rowntree, Waterloo, Iowa, to Miss Marie van Engelken of Ocala, Fla., March 11.

Lewis DeWitt Hews, Rockwell City, Iowa, to Miss Jessie Pritchard of Spokane, Wash., July 3.

Thomas Gustin Aller, Philadelphia, to Miss Natalie E. Walton of Torresdale, Pa., June 1.

Anny Merya Caroline Ernestine Petersen to Mr. P. O. Saunders, both of Chicago, recently.

Westley Cintra Cox, Brooklyn, to Miss Maxine Larson of Washington, D. C., June 1.

Don B. Biggs, Findlay, Ohio, to Miss Eva Swope, at Felicity, Ohio, July 9.

Paul Vincent Joyce to Miss Edna Callahan, both of Chicago, July 16.

Deaths

Major Morris Jacob Karpas, M. R. C., U. S. Army, New York City; Long Island College Hospital, Brooklyn, 1904; aged 39; a Fellow of the American Medical Association; a member of the American Medico-Psychological Association; chief of clinic of the New York Neurological Institute; assistant alienist to Bellevue and Allied Hospitals; adjunct neurologist to the Montefiore Home and assistant physician to the neurological department of Cornell Dispensary; on duty with the American Expeditionary Forces in France; is reported to have died from disease by the list of American Overseas casualties which appeared in the daily press of July 22.

Holt Couch Wilson, Portland, Ore.; University of Virginia, Charlottesville, 1876; Bellevue Hospital Medical College, 1877; aged 62; a member of the Oregon State Medical Association; professor of surgery in the University of Oregon Medical School; a member of the staff of the Good Samaritan Hospital, and medical director of the Columbia Life Insurance Company; who was operated on in the Good Samaritan Hospital, July 3; died in that institution, July 7.

Richard Wash Salter, New Orleans; Tulane University, New Orleans, 1892; aged 50; a Fellow of the American Medical Association; a specialist in ophthalmology and a member of the visiting staff of the Eye, Ear, Nose and Throat Hospital, New Orleans, for ten years; lecturer on diseases of the eye in the New Orleans Polyclinic; visiting oculist to the Charity Hospital; died at his home, July 7, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent, while suffering from a nervous breakdown due to overwork.

Capt. George Tupper, M. R. C., U. S. Army, Thief River Falls, Minn.; Northwestern University Medical School, Chicago, 1899; aged 46; a specialist in diseases of the eye, ear, nose and throat; who later practiced in California and Mexico, and was in Europe when the war broke out, and became attached to a medical division of one of the allied nations; is reported to have died recently in France.

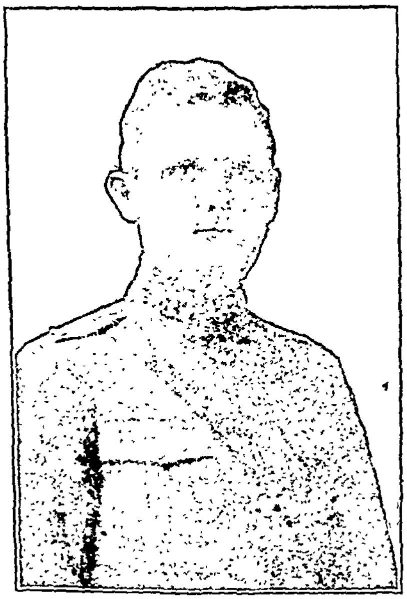
Edward J. McOscar, Fort Wayne, Ind.; Jefferson Medical College, 1884; aged 57; a Fellow of the American Medical Association; local surgeon for the Grand Rapids and Indiana Railroad; physician and surgeon to St. Vincent's Orphan Asylum; who had been suffering from insomnia, due to a nervous breakdown, was found dead in his home, July 11, from an overdose of chloroform taken to induce sleep.

Capt. Addison John Provost, M. R. C., U. S. Army, Oshkosh, Wis.; Hahnemann Medical College, Chicago, 1891; aged 55; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; who had been on duty at Fort Riley, Kan., and later at Fort Bliss, Texas; died in the Army and Navy General Hospital, Hot Springs, Ark., July 7.

Samuel Thomas Day, Port Norris, N. J.; University of Maryland, Baltimore, 1889; aged 59; a Fellow of the American Medical Association; formerly president of the Cumberland County (N. J.) Medical Society, and a member and physician to the board of health of Commercial Township; died at his home, July 12, from gallstone disease.

James L. Watson, Toledo, Ohio; Toledo (Ohio) Medical College, 1891; aged 61; a member of the Ohio State Medical Association; formerly president of the Toledo Academy of Medicine; chief medical director of the Toledo Traveler's Life Insurance Company; died at his summer home, Clear Lake, Ind., July 11, from malignant disease.

Augustus William Potter, Lisbon, Me.; Bowdoin Medical School, Brunswick and Portland, 1884; aged 64; for six years superintendent of schools; for fifteen years chairman of the board of selectmen, and for several years town moderator; died at his home, July 11, from cerebral hemorrhage.



Died in the Service
in France
Lieut. William G. Herrington,
M. R. C., U. S. Army,
1884-1918
(See The Journal, last week, page 214)

Lieut. Arthur Murray Clare, C. A. M. C., Neepawa, Manit.; Manitoba Medical College, Winnipeg, 1917; aged 24; who left for the western front soon after graduation and was assigned to duty with the Durham Light Infantry; was instantly killed in the Aisne front in France, May 28, by a machine-gun bullet wound of the heart.

John Miller Stephens, Pasadena, Calif.; University and Bellevue Hospital Medical College, 1903; aged 39; a specialist on diseases of the eye, ear, nose and throat; while motoring between Santa Barbara and Paso Robles, Calif., was killed by the overturning of his automobile near Santa Maria, July 10.

Capt. Walter Soulard Johnson, M. R. C., U. S. Army, San Francisco, on duty at Camp Kearney, Linda Vista, Calif.; Long Island College Hospital, Brooklyn, 1899; aged 49; a Fellow of the American Medical Association; died in San Francisco, April 26, from suppurative meningitis.

Earl Bigham, Grand Rapids, Mich; Rush Medical College, 1885; Long Island College Hospital, Brooklyn, 1893; aged 60; a Fellow of the American Medical Association, and once president of the Kent County (Mich.) Medical Society; died at his home, July 5.

Charles I. Groves, Louisville, Ky.; University of Louisville, Ky., 1889; aged 53; a member of the Kentucky State Medical Association; coroner of Jefferson County from 1907 to 1909; died at his home in Kenilworth, July 2, from a congestive chill.

John Conrad Lemmer, Wilkinsburg, Pa., University of Maryland, Baltimore, 1885; aged 56; a member of the Medical Society of the State of Pennsylvania; the first medical examiner appointed by the Pennsylvania Railroad; died at his home, July 9.

Charles E. Doyle, Galesburg, Mich.; Detroit College of Medicine and Surgery, 1893; aged 56; at one time a Fellow of the American Medical Association; a member of the Michigan State Medical Society; died at his home, July 8, from cerebral hemorrhage.

James R. Lewis, Louisville, Ky.; Louisville (Ky.) Medical College, 1901; aged 57; until ten years ago a practitioner of Louisville, and since that time office manager of the Standard Printing Company; died at his home, July 3, from tuberculosis.

Alfred Drury, Princeton, N. J.; New York Homeopathic Medical College, New York City, 1900; aged 46; visiting physician to St. Mary's Hospital, Passaic, N. J.; died in Ocean Grove, N. J., July 9, from pneumonia.

Nelson Curtice Holt, Webster, N. Y.; Bellevue Hospital Medical College, 1896; aged 65; formerly financial secretary of the Rockefeller Institute for Medical Research; died suddenly at his home, July 8.

James Fleming Walker, Anniston, Ala.; University of Louisville, Ky., 1892; aged 71; a member of the Medical Association of the State of Alabama; a Confederate veteran; died at his home, July 10.

Jacob Pinckney Killian, Salem, Va.; New York University, New York City, 1871; aged 69; a member of the Medical Society of Virginia; died at his home, July 5, from cerebral hemorrhage.

Gideon B. Thomason, Alphretta, Ga.; Atlanta (Ga.) Medical College, 1882; aged 72; a Confederate veteran; was struck and instantly killed, July 5, by a Georgia Railroad locomotive.

Samuel Carlisle Meredith, Philadelphia; Jefferson Medical College, 1888; aged 63; also a druggist; a practitioner for thirty-five years; died at his home, July 12.

John James A. Doyle, Philadelphia, Jefferson Medical College, 1897; aged 43; died in Atlantic City, N. J., July 6, from the effects of overwork.

Aron A. Mendel, New York City; University of Jassy, Roumania, 1896; aged 50; died at his home, July 12.

Frank McAvinnue, Lowell, Mass.; University of Vermont, Burlington, 1889; aged 64; died at his home, July 7.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose *Medical Fraud on the Public and on the Profession*

DEPENDABILITY OF DOSAGE IN TABLETS

The tablet form of administering medicines is popular among many physicians because of its convenient availability and dosage. There is no doubt about the convenience of tablets, but the accuracy of the dosage content is not always to be depended on. One reason for this is that the demand for palatable and convenient "medicaments has led manufacturers to attempt to produce in tablet form mixtures which, from the nature of the case, are not suited to that method of compounding." In a series of painstaking experiments[1] on Bismuth, Opium and Phenol tablets, conducted a number of years ago in the A. M. A. Chemical Laboratory, it was shown that no tablets on the market then contained the amount of phenol the label indicated, the variation being from 12.3 to 112.5 per cent. Similarly the laboratory found that in the case of several different brands of Aromatic Digestive Tablets,[2] the amount of hydrochloric acid present in these absurd combinations was true to label in only one half of the specimens notwithstanding the fact that the amounts claimed to be present were ridiculously small; in two specimens there was no hydrochloric acid whatever present, while a third contained only a trace. These examples illustrated clearly the very evident unwisdom of attempting the pharmaceutically impossible merely for the sake of convenience or pharmaceutical "elegance."

Another reason for doubting the accuracy of dosage, irrespective of the characteristics of the drugs composing the tablets, has been the manifest lack of care in their manufacture. In 1914, Kebler[3] reported the results of a far-reaching investigation of tablet compounding in which he pointed out that tablets on the market were not as uniform or accurate as was generally believed, the variations being "unexpectedly large in numbers and amount." During the past year, the Connecticut Agricultural Experiment Station[4] undertook the examination of tablets—proprietary and nonproprietary—taken from the stock of dispensing physicians. The variations found in *weights* of the tablets were strikingly similar to those reported by Kebler.

VARIATION IN WEIGHTS OF TABLETS

Variation	Kebler Per Cent.	Connecticut Per Cent.
Less than 10 per cent.	43	44
More than 10 per cent.	57	56
More than 12 per cent.	44	35
More than 15 per cent.	28	26
More than 20 per cent.	9	10

The determinations of the *composition* of the tablets when compared with that claimed for them showed wide variation—from 54 per cent. above to 70.5 per cent. below; in almost two thirds of the tablets examined, the variation amounted to more than 10 per cent.; in three fifths of the tablets, the variation was more than 15 per cent.; in one fourth, more than 20 per cent., and in one twentieth, more than 50 per cent.; only in one eighth of the tablets was the variation less than 5 per cent. Allowing a tolerance in composition of 10 per cent., one or more products of the following manufacturers were found deficient: Buffington Pharmacal Company; The Daggett and Miller Company; Drug Products Company; The Harvey Company; National Drug Company; B. F. Noyes Company; Progressive Chemical Company; Tailby-Nason Company, and John Wyeth & Brother.

The Connecticut investigators substantiate once again the work previously reported, namely, that there are a number of firms who are either incompetent or careless. For tablets of simple composition, a variation from the declaration of 10 per cent. should be amply sufficient to compensate for the errors of careful manufacture. It may be added that the best tablets originate generally from firms having competent chemical control.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. *Every letter must contain the writer's name and address, but these will be omitted, on request.*

DRAFTING OF PHYSICIANS—BUREAU OF NURSING

To the Editor:—1. Would a physician within the draft age, unmarried, classified in A-1 but placed in "limited service" classification on account of an ankle which was sprained fifteen years ago but which gives no trouble now, be inducted into service? 2. Is the government school for nurses now in operation? If so, to whom can one make application?

C. O. J., Texas.

Answer.—1. Physicians drafted into the service are held as privates in the line. Division surgeons in the camps are instructed to receive the applications of such men for membership in the Medical Reserve Corps and to examine them. If successful, the candidate may be given a *commission*; if unsuccessful, he continues to serve in the department of the Army to which he has been assigned.

2. Yes. Apply to your Division Director of the Bureau of Nursing of the American Red Cross, Gulf Division, Post Office Building, New Orleans.

BISMUTH IODOFORM *PETROLATUM PASTE*

To the Editor:—Please give me the formula for the bismuth iodoform and paraffin paste now being used by Dr. Rutherford Morison; also his technic, if possible, of its use, and the reference to any articles on the subject.

R. A. Bowdle, M.D., East Ely, Nev.

To the Editor:—A recent newspaper despatch describes the use of a preparation of bismuth iodoform and paraffin paste in the treatment of wounds in France. It was spoken of as "bipp." If this has been authentically reported, please advise me as to where it can be found.

D. W. McLean, D.D.S., Mount Vernon, N. Y.

Answer.—Bismuth iodoform petrolatum paste was introduced by Rutherford Morison as a surgical dressing to check and remedy the spread of infection of wounds (*Lancet,* London, 1916, **2,** 268; *Brit. Jour. Surg.,* 1917, **4,** 659; *Brit. Med. Jour.,* 1917, **2,** 503; *Internat. Jour. Surg.,* 1918, **21,** 33). In Europe, the mixture is often termed "bipp," the word formed by the initials of the constituents. Until last October the formula generally given for the preparation of the paste was:

Iodoform, 16 ounces; bismuth subnitrate, 8 ounces; liquid petrolatum, 8 fluid ounces or a sufficient quantity. The powders are mixed together in a mortar, and the liquid petrolatum incorporated. The quantity of liquid petrolatum required varies according to the bulk of the powders, the bismuth in particular being liable to a considerable variation in bulk. A sufficient quantity should be added to form a paste. It is then advisable to rub down the paste, in small quantities at a time, on a slab with a spatula, to insure freedom from grit and dry particles of powder.

The formula, as revised by S. Dunstan, and also recommended by Morison is:

Iodoform	440 gm.
Bismuth subnitrate	220 gm.
Petrolatum	220 gm.

The bismuth and petrolatum are sterilized by dry heat at a temperature of 120 C. for half an hour, the bismuth after cooling is mixed with the iodoform in a mortar that has been sterilized by means of boiling water and solution of formaldehyd. The petrolatum is added to the mixture at a temperature of 90 C. and thoroughly mixed. Care must be taken in sterilizing that the temperature does not rise too high, otherwise nitrous fumes will be evolved.

A paste made by this method is found to be fairly solid in consistency, shows no signs of separation or decomposition, and is sterile, as certified by Dr. Slade, bacteriologist.

Should a paste be required of a softer consistency, the formula may be modified thus:

Iodoform	440 gm.
Bismuth subnitrate	220 gm.
Paraffin base	220 gm.
Paraffin base:	
Petrolatum	19 parts
Liquid petrolatum, specific gravity 0.880	40 parts

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1. Puckner, W. A., and Clark, A. H.: Examination of Tablets of
Bismuth, Opium and Phenol, The Journal A. M. A., July 25, 1908,
330. Puckner, W. A., and Hilpert, W. S.: Tablets of Bismuth, Opium
and Phenol, Dec. 17, 1910, p. 2169, May 6, 1911, p. 1344. Unreliable
Pharmaceutical Products, editorial, May 6, 1911, p. 1335.

2. Puckner, W. A., and Warren, L. E.: Aromatic Digestive Tablets,
The Journal A. M. A., Aug. 20, 1910, p. 710.

3. Kebler, L. F.: The Tablet Industry, Jour. Am. Pharm. Assn.,
1914, **3**, 820, 937, 1062.

4. Bull. 200, Connecticut Agricultural Station, Food and Drug
Products, 1917, p. 161.

Morison in his recent book on "Bipp Treatment of War Wounds" (Henry Frowde Hodder and Stoughton, London, 1918) gives the following directions for its use:

1. Under an anesthetic, usually open ether, cover the wound with gauze wrung out of 1:20 phenol (carbolic acid), and clean the skin and the surrounding area with the same lotion.

2. Open the wound freely and, if possible, sufficiently to permit of inspection of its cavity. A guide—a finger is the best if the size of the wound permits of it, and if not a thick probe—should be introduced to the bottom of the wound and held there and fully exposed. In doing this special regard must be paid to nerve trunks and muscular branches of nerves, since the division of blood vessels, excepting the largest, and of muscles themselves does little harm as compared with that of the disability following nerve damage. Cleanse the cavity with dry sterile gauze mops, Volkmann's spoon, etc., and remove all foreign bodies.

3. Mop the surrounding skin and the wound cavity with methylated spirit and dry it.

4. Fill up the whole wound with bipp, and rub it well in with dry gauze. Then remove all excess, leaving only a thin covering over the wounded surface. Dress the wound with sterile gauze and cover all with an absorbent pad, which is held in position by adhesive plaster and a bandage. This dressing requires no change for days or weeks if the patient is free from pain and constitutional disturbance. Should, however, discharge come through, the stained part must be soaked in spirit and a gauze dressing wrung out of it applied as a further covering.

Redressing is very simply done. After removal of the old dressing the wound is covered with a pledget of cotton soaked in spirit, and the sticky, dirty-looking discharge is wiped off the surrounding skin until it is clean.

A great number of favorable reports have been published on the use of bismuth iodoform petrolatum paste; also unfavorable reports have appeared, as the procedure is not without danger of bismuth and iodoform poisoning.

The following are some of the references on this subject:

Brander, H. S.: Bismuth and Iodoform Paste after Bone Grafting, *Brit. Med. Jour.*, 1917, **1**, 360.

Freilich, E. B.: Bismuth Poisoning Following Bismuth Paste Injection, THE JOURNAL, Jan. 13, 1917, p. 111.

Chambers, H., and Goldsmith, J. N.: Bacteriological and Chemical Action of Bismuth-Iodoform-Paraffin Paste, *Lancet*, London, 1917, **1**, 333.

O'Conor, Vincent, and Kreutzmann, H. A.: The Use of Bismuth Iodoform Paste in Outpatient Work, THE JOURNAL, Dec. 15, 1917, p. 2010.

Morison, Rutherford: The Treatment of Infected Suppurating War Wounds, *Brit. Jour. Surg.*, 1917, **4**, 659.

Hepworth, F. A.: Toxic Symptoms after Use of Bismuth-Iodoform-Paraffin Paste, *Lancet*, London, 1917, **1**, 573.

Phillips, John: Bismuth Poisoning and Nitrite Poisoning from Use of Bismuth Subnitrate, *Cleveland Med. Jour.*, 1917, **16**, 419.

Anderson, Louisa G., and Chambers, Helen: The Treatment of Septic Wounds with Bismuth-Iodoform-Paraffin Paste, *Lancet*, London, 1917, **1**, 331.

Colledge, L., and Drummond, Hamilton: Treatment of Recent Gunshot Wounds with Reference to Bismuth-Iodoform-Paraffin Paste, Compound Fractures, *Lancet*, London, 1917, **2**, 49.

Walker, E. H.: Treatment of Wounds with Bismuth Iodoform Paraffin Paste, *Brit. Med. Jour.*, 1917, **2**, 80.

Emerson, M. L.: Bismuth Iodoform Petrolatum Paste in the Treatment of Recent Wounds, THE JOURNAL, Jan. 12, 1918, p. 79.

Besley, F. A.; Treatment of War Wounds; Aseptic and Open-Air Treatment as Compared with Antiseptic Treatment, *Surg., Gynec. and Obst.*, 1918 **26**, 8; abstr., THE JOURNAL, Jan. 19, 1918, p. 195.

THE HARRISON NARCOTIC LAW AS APPLIED TO MEDICAL OFFICERS

To the Editor:—Will you kindly answer the following question: I am licensed to practice under the laws of the state of Ohio; I am also an assistant surgeon in the regular Navy. I wish to give a prescription for an opiate to the wife of a sailor whom I am called to treat in the regular discharge of my duty. I no longer pay the tax required by the Harrison law. Does this law permit the civilian druggist to fill my prescription? This question has come up several times, as the naval station is several miles from the town where most of the families of the enlisted men live, and an emergency often arises when the local druggist could supply the drug if permitted by law. Please omit my name.

T. E. W.

ANSWER.—We are informed by the local commissioner of internal revenue that a surgeon in the United States Navy can prescribe opiates without registration under the Harrison Narcotic Law if in discharge of his official duties; but in private practice he must qualify in the state in which he intends to practice.

A SAMPLE LETTER

To the Editor:—I am examining applicants of several counties for officers' commissions in the Medical Reserve Corps. Almost every one asks questions which are answered in your booklet "Information Regarding Appointment in the Medical Reserve Corps of the United States Army." If you would care to send a *hundred* copies, I can use them giving one to each applicant.

W. B. JONES, M.D., Rochester, N. Y.

ANSWER.—They have gone.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Kansas February Examination

Dr. H. A. Dykes, secretary of the Kansas Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 12, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Twenty-one candidates, including 1 nongraduate, were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Northwestern University	(1908)	80
Rush Medical College	(1917)	80
College of Phys. and Surg., Kansas City	(1903)	79
University of Pennsylvania	(1917)	78

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Phys and Surg., Los Angeles	(1917)	California
Atlanta College of Physicians and Surgeons	(1910)	Oklahoma
Bennett Medical College	(1916)	Illinois
Northwestern University	(1912)	Iowa
Rush Medical College	(1905)	Illinois
Coll. of Phys. and Surg., Keokuk (1890) Nebraska;	(1895)	Missouri
Keokuk Medical College, College of P. and S.	(1902)	Iowa
University of Louisville	(1916)	Kentucky
University of Michigan Medical School	(1916)	Michigan
American Medical College	(1887)	Missouri
Missouri Medical College	(1896)	Missouri
University Medical College of K. C.	(1899) (1900)	Missouri
Washington University	(1917)	Missouri
Lincoln Medical College	(1917)	Nebraska
Jefferson Medical College	(1895)	Missouri
Memphis Hospital Medical College	(1892)	Missouri
University of Tennessee	(1915)	Texas
Western University	(1912)	Iowa

Illinois March Examination

Mr. F. C. Dodds, superintendent of registration, Department of Registration and Education, reports the practical and written examination held at Chicago, March 25-28, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 33 candidates examined, 20 passed and 13 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1916)	77.2, 79.1; (1917) 76.9, 78.6, 78.8, 85.3.
Chicago Hospital College of Medicine	(1917)	81.7
Loyola University	(1917) *; (1918)	75.8, 80.8
Northwestern University	(1917)	83.6
Rush Medical College	(1885) 75.7; (1917) 80.7, 81.6; (1918)	79.4 82.1 84.2, 86.7.
Keokuk Medical College	(1898)	81.1
Queen's University	(1913)	75.1
FAILED		
Bennett Medical College	(1914)	+
Chicago College of Medicine and Surgery	(1917)	56.7, 62.6, 70.5, 71.2, 72.7.
Chicago Hospital College of Medicine	(1916)	74.6
Jenner Medical College	(1916)	64.8
Loyola University	(1916) 72.9; (1917)	63.6, 72
Indiana Medical College (Purdue Univ.)	(1907)	71.0
University of Buffalo	(1882)	63.9

* No grade given.

+ Failed in practical examination.

New Mexico Reciprocity Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports that 6 candidates were licensed on credentials and 2 candidates were licensed through reciprocity at the meeting held April 8-9, 1918, at Sante Fe. The following colleges were represented:

College LICENSED ON CREDENTIALS	Year Grad.	Total No. Licensed.
University of Iowa School of Medicine	(1905)	1
Beaumont Hospital Medical College	(1900)	1

St. Louis University	(1905)	1
University Medical College of K. C.	(1904)	1
Miami Medical College	(1903)	1
McGill University	(1897)	1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Drake University	(1908)	Iowa
Baylor University	(1916)	Oklahoma

Book Notices

Lord Lister. By Sir Rickman John Godlee, Bt., K.C.V.O., M.S., F.R.C.S. Cloth. Price, $6. Pp. 676, with illustrations. New York: Macmillan Company, 1917.

If there is one name in the annals of medicine that towers above all others, it is that of Lister. This is especially true if the judgment is made on the basis of work resulting in the greatest benefit to humanity. Certainly the work of no other man, in medicine at least, has proved so epoch-making. The life of such a man is worth knowing, and Sir Rickman Godlee is to be congratulated on his successful presentation of this biography. It is more a review, step by step, of the work, than of the life, of the man: in a man of such accomplishments his work is his life. If any one had the impression that Lister's achievements were the result of chance or accident, that impression would be quickly removed on reading this biography, for it is clearly shown that Lister's final results were founded on hard research work that had its beginnings in his student days. In 1853, when only 26 years of age, he published a paper on the muscular tissues of the iris, and in the same year one on the muscular fibers of the skin. Two years later he was reporting on his investigation of the early stages of inflammation. Shortly after this he published papers on cutaneous pigmentation of the frog, on coagulation of the blood, and on spontaneous gangrene. From the beginning his letters, as well as his published papers, reflect the hard, painstaking research work of a genius. This early research work laid the foundation for that which was to follow. It was one step after another, leading up to the final grand results. His real surgical experimental work did not begin until he went to Edinburgh. Here he immediately came under the influence of Syme, whose daughter he later married.

There are those who would minimize the effect of Lister's work on the revolution in surgical methods and technic that occurred during the latter half of the last century, and would give the greater credit to Pasteur. It would, of course, be little more than guesswork to say what would have been the ultimate outcome of Lister's work if Pasteur's discoveries had not been made. As Pasteur himself said, "Chance only favors the mind that is prepared." Lister's mind was certainly prepared. He, and he only, was in a position to see and grasp the one thing he had been seeking—the real cause of suppuration. Sir John Batty Tuke, writing to Lord Lister in 1907, calls his attention to an incident that occurred in 1854. "You took down the dressing 'of a popliteal case' and found the wound healed except where the ligature was, and you said 'The main object of my life is to find out how to procure this result in all wounds; but why is it not healed around the ligature?' Boy-like, I said 'the irritation of the silk.' 'No,' you replied, 'not of, but in, or on.'" Lister did, to a certain extent, succeed in preventing putrefaction in noninfected wounds, but he had not learned why. Pasteur's work showed him why.

A former biographer—Wrench—in his "Lord Lister, His Life and Works," devotes a long chapter to an arraignment of those who have departed from "true listerian methods," and seems to regard any modification as unwise, if not sacrilegious, and to be deplored. Wrench is extremely harsh in his criticisms of those who are "devoted to that most modern, rather than to the most inspired, treatment" and ridicules what he regards as the unnecessary and extremely detailed methods of cleanliness of the moderns. While more conservative in discussing the subject, Sir Rickman Godlee also regards as regrettable the departure from Lister's teachings and practice. These discussions carry one back to the early days when Thomas Keith, Bantock, Lawson Tait and others, while recognizing the germ theory of infection, opposed the use of chemical antiseptics, claiming equally good results from rigid cleanliness and aseptic surroundings. The controversy at that time was bitter, and Tait was accused of misstatements of facts when publishing his results. But those who saw him operate were always ready to defend him. While not entering into the controversy, Thomas Keith reported equally good results by the aseptic methods. Our present biographer refers to the Caroll-Dakin "antiseptic" treatment of wounds as a harking back to true listerism, and regards this success as proof of the superiority of Lister's antiseptic over the modern aseptic methods. This, of course, is open to argument. However, the point the reviewer wishes to emphasize is that no man was more open-minded, more ready to acknowledge an error, or more anxious to adopt suggestions for improvement than Lord Lister during the time he was in active work, and it may be presumed that his views regarding phenol (carbolic acid) and other chemical antiseptics would have been decidedly modified as time went on, and as he saw what others were doing. For a number of years the spray was regarded as a necessary adjunct to every operation, or at least as an important factor; but as soon as Lister became convinced that it was not essential, it was discarded.

As the book was written for laymen it was necessary for the author to adopt a simple style and to use language which a medical man might regard as elementary, and to explain or describe conditions and technic in more detail than would otherwise be necessary; but this cannot be regarded as a fault, even from the point of view of the physician. On the contrary, the simplicity of language that is called for here and there, and the explanatory sentences and paragraphs that occur when necessary to make the matter understandable to the intelligent layman, make for easier and more satisfactory reading. Godlee's "Lord Lister" is a book that should be read by every physician. It shows what one man, by hard work and close application to one subject, can accomplish. But especially should it be read because it literally presents the contrast between the time when suppuration, hospital gangrene and often death were the accompaniments of surgery—even of the best surgeons—with the present time, when suppuration is practically banished, hospital gangrene has become unknown, and death seldom occurs.

Reagents and Reactions By Edgardo Tognoli, M.D., Professor in the University of Modena. Translated from the Italian by C. Ainsworth Mitchell, B.A., F.I.C. Cloth. Price, $2 net. Pp. 228. Philadelphia: P. Blakiston's Son & Co., 1918.

In past years, the chemical profession was not very different from the medical profession of those times, or certain proprietary interests of today, as the scientific names of chemical composites, whether they were reactions or mixtures, were relegated to the background, in order that the personal name of the sponsor might be capitalized. Thus, to the confusion of students and practitioners of chemistry, there exists today as a heritage a vast number of tests and solutions, differentiated in the literature by meaningless proper nouns. Tognoli has collected the tests and has cross-indexed them in such a manner that the publication will serve as a useful reference epitome. He has not attempted, however, to alleviate the difficulty by giving the reactions sensible names. Certain purity tests for reagents are described, most of which are unnecessary to one who employs the U. S. P. test solutions. The book is recommended to those who need such a reference book, and who do not have the same material in larger works.

The Practice of Pediatrics. By Charles Gilmore Kerley, Professor of Diseases of Children in the New York Polyclinic Medical School and Hospital. Second edition. Cloth. Price, $6.50 net. Pp. 913, with 136 illustrations. Philadelphia: W. B. Saunders Company, 1918.

In his preface to the second edition, Kerley says that twenty-five new articles have been added, sixteen chapters largely rewritten, and lesser changes made in many others. One of the advantages of this textbook is that there are numerous illustrative cases; among the disadvantages are some of the methods of treatment advocated by the author, including, for the condition which he calls acute enteric intoxication, medication with 20 minims of brandy and 1 drop of the tincture of strophanthus for a child 6 months of age, and in colic, from 5 to 10 drops of gin in 3 teaspoonfuls of hot water to be repeated in ten minutes. When prescribing liquid petrolatum, he invariably refers to it as liquid albolene aromatic, thus specifying the preparation of a single firm. On the whole, the book is well worked up, contains a mass of material, and may be regarded a valuable reference work. Of course, the chief value of such textbooks depends on the material which is distinctly individual with the author; for instance, under the treatment of poliomyelitis he says: "The intraspinal use of human serum of those who have recovered from poliomyelitis has its advocates. My own observations do not warant an endorsement of this form of treatment." Under pneumonia he makes no mention of the various types of organisms or of the serum treatment.

A Diabetic Manual for the Mutual Use of Doctor and Patient. By Elliott P. Joslin, M.D., Assistant Professor of Medicine, Harvard Medical School. Cloth. Price $1.75. Pp. 187, with 17 illustrations. Philadelphia: Lea & Febiger, 1918.

This little manual will be found of great service by every practitioner who essays to treat diabetes. Its value lies in its stating in simplest form, stripped of all perplexing theories and confusing chemical formulas, the few cardinal facts that should be known regarding the nature of this disease in order that it may be intelligently and scientifically managed. This management, almost entirely dietetic, is clearly discussed, with all necessary detail, including illustrative cases and numerous tables and many recipes, so that the book is valuable for ready reference. The ordinary chemical tests of the urine that are employed in the cases are also described. The work is designedly elementary and can easily be understood and utilized by any intelligent patient as an aid in treating his own illness.

The book is so excellent and fills such a definite want that we refrain from making certain criticisms that seem justified, for after all, they concern rather questions of taste, protection and propriety than the real content of the work, which deserves only commendation.

Reclaiming the Maimed. A Handbook of Physical Therapy. By R. Tait McKenzie, M.D., Professor of Physical Therapy, University of Pennsylvania. Cloth. Price $2. Pp. 128, with 115 illustrations. New York: The Macmillan Company, 1918.

This is a small, pocket-size book showing in very condensed forms what may be done by means of physical exercise to reclaim the maimed. The directions are brief and simple, and excellent illustrations contribute much toward making the meaning clear. The author has had abundant opportunity for study of these problems in the war hospitals of England and Canada. Many physicians will probably smile at his optimistic faith in the curative powers of some of the methods, as when he describes the simple way of handling shell shock by electricity; or disposes of the much discussed soldier's heart—D. A. H.—by dismissing it as clearly of nervous origin and readily yielding to "faradic or high frequency current through the thyroid, the sedative bath, gentle massage and rest," followed later by light gymnastic exercise and walking. The subjects discussed in the various chapters are medical electricity; the faradic current and high frequency; radiant heat and light; hydrotherapy; massage; reeducation; gymnastics and athletic games; treatment by occupation, and masking of facial deformity.

Laboratory Methods of the United States Army. Compiled by the Division of Infectious Diseases and Laboratories, Office of the Surgeon-General, War Department, Washington, D. C. Medical War Manual No. 6. Authorized by the Secretary of War and under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, $1.50. Pp. 256, with 5 illustrations. Philadelphia: Lea & Febiger, 1918.

This manual has been compiled by members of the Surgeon-General's staff, utilizing many standard textbooks. It is a collection of formulas and technical methods as a guide in carrying out laboratory examinations in stationary and field laboratories. It is a most practical, compact working handbook.

Social Medicine, Medical Economics and Miscellany

PSYCHOLOGY OF THE NATIONS AT WAR

Hon. James M. Beck, LL.D., New York, in the annual address before the Medical Society of the State of New York, traced an analogy between the war and the works of Shakespeare. "The master of analogy of all time was Shakespeare," he said. "Of all his analogies, those drawn from history are most notable, yet he never put on the stage such a stupendous tragedy of history as that which is now being enacted. This great drama now being enacted is one which has been drawn by this great portrayer of character in his 'Hamlet.' If one takes the nations today and the characters of 'Hamlet,' the analogy is perfect. Prussia is the usurping king of Denmark, who, in the summer of 1914, found the whole world sleeping in the garden of civilization. There was never a brighter outlook for the fraternity of nations than at this time; there was not the least cause for international friction. It was then that Prussia poured into the ear of the sleeping nations the cursed henbane which has cost the world the loss of at least 10,000,000 men, women and children. Shakespeare did not make the brother of the king of Denmark altogether bad. Claudius still had a consciousness that heaven was not deluded when he said, 'My words fly up, my thoughts remain below; words without thoughts never to heaven go.' Prussia has today a gnawing remorse at its soul of souls, as is shown by the words of the kaiser on three occasions, 'God knows I did not will it,' although he knows well that God knows he did will it; but this is as nothing as compared with the verdict the world has brought. It has put the brand of Cain on the brow of the German people, and in virtue of this verdict the cause of the Allies has already triumphed, for it has rendered an irrevocable verdict against Germany. Gertrude in the play is Germany in contradistinction to Prussia. Prussia is the royal family of Germany, the diplomatists, the professors, capitalists, and those in high places. Germany is the great people, the chemists, biologists, laboring people, small traders and so forth. It is vital that we should make this distinction between Prussia and Germany and the people. In dealing with Germany, it is necessary to go further than merely the Potsdam gang, we must say to Germany, as well as to Prussia, 'So long as you sit at the bar of the world cynical and unashamed, just so long we will not buy from you, we will not sell to you, and we will drive you as Cain was driven by the flaming sword of the angel from the gates of Paradise.'

"Who is Laertes? Laertes was a character in Hamlet who acted on his passionate impulse. He never started to reason or to think like men. Laertes is Austria. When the whole history of this war comes to be written, what a pitiful object Austria will be. Austria is the tool master of Prussia, and like Laertes, it has perished in its own poisoned foil. If Germany should be triumphant, Austria becomes merely a vassal state.

"The Rosencrantz and Guildenstern, whom Hamlet would just as soon trust as friends, are Bulgaria and Turkey. Who is Polonius? He was a precise old formalist, once a very able statesman, but unfortunately his brain had ossified into maxims and phrases. Although he discoursed most wisely, it was of the graphophone type of oratory. The Polonius of this world tragedy is Russia. There is one of the most notable tragedies the world will ever know. There crept into Russia those wise maxims and phrases that were the undoing of Polonius. It was peace without annexation and indemnities; down with capital; universal freedom; no order or discipline; peace without victory. All these specious phrases ran through the heart of Russia as poison, with the result that this mighty colossus of the north crumbled as no nation ever crumbled before.

"We now come to Horatio. One of the marvelous arts of Shakespeare is the fact that he could take a minor character and like a skilful surgeon, or an artist with a few sweeps of the brush, can hold the mirror up to nature in a most extraordinary manner. In this minor character of Horatio, Shakespeare represents one of his noble characters. Besides the temperamental, emotional facility of Hamlet, he put this well poised, serene, steadfast soul, always true to his ideals, always loyal to his friends even unto death, and with a clarity of vision and keenness of insight that made him not only the noblest character in the play, but by all odds the one who had been given high rank and would have worked redemption without tragedy. Who has been the Horatio in this tragedy? I but anticipate your thoughts when I say France. What a world of apology the Anglo-Saxon races owe to France. The French people are so noble, so transfigured in the glory of self-sacrifice that words are powerless to say what you and I now think of France.

"Ophelia caught in the vortex of this world tragedy is obviously Belgium. Belgium can say with Ophelia, we know what we are, but we know not what we may be. There is one dissimilarity in this analogy because Ophelia is marked by weakness of character. No one would impute weakness of character to Belgium which, with a standing army of 100,000 men, with 750,000 Germans pouring into the frontiers, with a certainty of annihilation for the time being, held the gate as the Greeks did at Thermopylae, and it required the German army sixteen days to go through Belgium whereas the schedule prescribed six. All honor to Belgium, as we honor the Greeks.

"Who is Fortinbras? Fortinbras is the son of a Norwegian viking, who in 'Hamlet' comes in and marks the end of the play. Fortinbras is England, who saw no reason for entering a quarrel the issue of which was not clearly defined. It is England that made 'mouths at the invisible even.' On the night of the fourth of August, 1914, England said she was not concerned with the Belgian quarrel; that she was obliged to wait for some definite issue; but when Belgium, through the words of its noble king, appealed to the king of Great Britain for aid against the threatened invasion of the Germans, think of what that meant to England. There was no possible direct benefit to her in entering a quarrel, the ultimate outcome of which no human being could foresee. She had an incomparable fleet—yes, but her army consisted of only 250,000 men, one half of which was scattered to the four ends of the world, with which to defend her far flung empire, and how could she tell that India, with 250,000,000 of that race, might not rebel? How could she tell that South Africa, conquered ten years ago, might not rebel? How could she tell what would happen in Australia, New Zealand, Canada, or any of her far flung possessions? How could she tell if any disaster came to her fleet, what would happen? Yet England never hesitated when the king of Belgium appealed for aid. She sent her reply to Berlin that unless by midnight of August 4 she had a positive revocation of the order for the Germans to enter Belgium, she would fight at all hazards. No, she declared war, August 4, and by August 8, nearly 10,000 men were crossing the channel, and it was the Belgians and the British in taking their positions to the left of the French army that held like a stone wall at Mons and developed finally into the Battle of the Marne. It was that little army that by attacks and counterattacks put up a stone wall defense all the way back and gave General Joffre the opportunity to perfect his masterly strategy that culminated in the Battle of the Marne. England's honor was plighted to the defense of Belgium, and she 'made mouths at the invisible even' and staked her whole army on the issue of the struggle with twenty-four hours' deliberation after crossing the Belgian frontier.

"Who is Hamlet? In my judgment Hamlet is our own country, and in saying this I do not wish to be uncomplimentary to the United States. Hamlet is one of Shakespeare's greatest characters and his favorite child. He is the scholar, the courtier, the soldier, but he has one fundamental fault, and that fundamental fault America possesses. It is hard to tell what the character of this country may be in the future, but there was one fundamental fault in this country during the period which preceded our entry into the war. America, in its personality of a living citizenship, is composed of 100,000,000 human beings. In its historical personality America is the result of its history from the landing of the Pilgrim fathers, through the War of the Revolution, the War of 1812, and on through the Civil War. In its personality of a living citizen, America is swollen with material prosperity. The lesson of history is that material prosperity and luxury is the cause of national decay. We came out of the Civil War a strong and vigorous people, but of later years we have become surfeited with material things, just as Hamlet came from Wittenberg 'fat and scant of breath.' This was the position we found ourselves in at the beginning of the war. In our tradition and outlook we were provincial so far as world politics was concerned. History will record with horror our attitude during the early years of the war. If we had met the crisis that confronted us at the time of the sinking of the *Lusitania*, it is not too much to say that the cause of the Allies would have triumphed, and that the history of Russia would be very different. Our failure to be prepared and to meet the crisis in 1914 was not alone the fault of the government, but it was due to a psychologic defect in national character, to excessive development of the introspective faculty, to having centered our observation on internal affairs until it was almost too late. Hamlet perished because he was dilatory. It is to be hoped that the analogy will not be carried to the end in our case, but that we will awaken ourselves to vigorous action and save our national life."

The Child Delinquent in War Time

The story of child training in war time is more or less a story of enforced parental neglect, according to the reports that come from social workers, juvenile court judges, and students of criminology in the various European countries. Everywhere juvenile delinquency is growing, both in the number and the seriousness of the children's offenses. Everywhere the condition may be traced back to the same leading cause: The father is in the army, the mother is in the factory, and the usual safeguards of the home are broken down, depriving the child of the necessary discipline and protection. From every country, too, comes disquieting news of the collapse of various social agencies that supplement the work of the home. In England, the use of many school-buildings as hospitals, the overcrowding of the remainder, and the half-time reduction of school hours have played havoc with juvenile education. Young people's clubs have been left without leaders, school medical officers have been drawn into military service, and manual training in some of the schools has almost disappeared because of the absence of instructors. Parks and playgrounds have been closed, the probation system has suffered through the loss of many of its most experienced officers, and many children have entered industry, to become more or less demoralized by the abnormally high wages and the unusual freedom from discipline. From France come reports of the great increase of prostitution among young people, and of a relaxation of vigilance on the part of the courts and the police. Efforts are now being made to extend the powers of the French juvenile courts, which at present confine their attention exclusively to the child delinquent, so that the unoffending child dependent also may come under their jurisdiction. The new war-orphan law provides a kind of social guardianship for the child deprived of his natural guardians by the war. In Germany, economic conditions and antieducational influences are the chief reasons for the alarming increase of juvenile crime, which is committed almost exclusively by the poorer classes of children whose family life has been laid waste by the war. In Italy, where a reconstructive code for minors has been awaiting adoption since 1912, much has been said, but apparently little done, to solve the problem. One notable step toward the prevention of delinquency, however, was taken last July when the government adopted as wards of the nation the children whose parents or guardians have been killed in the war. In Russia, children's offenses take largely the form of vagrancy, theft and prostitution, the chief contributing causes being homelessness, evil industrial conditions, and the absence of legal protection for girls. The army of homeless children is recruited from the following classes: soldiers' orphans, for whom the government has tried to make special provision; child volunteers, many of whom have found their way to prison, and refugee children, who are crowded together in cities amid appalling conditions. In short, the whole disastrous chapter of juvenile delinquency in Europe should serve as a warning to our own country to provide adequately for its children in war time, regardless of expense or sacrifice.

Medicolegal

Power of County Health Commissioners to Appoint Physicians to Take Charge of Cases of Smallpox

(Board of Commissioners of Pike County v. Kime (Ind.), 118 N. E. R. 595)

The Appellate Court of Indiana affirms a judgment for $102.50 in favor of plaintiff Kime, a physician, who was by the health commissioner of the county appointed in writing to take charge of a family in which there was smallpox, notwithstanding the defense was made that competent and duly licensed physician had been provided to render all medical services to the paupers and indigent persons of the township in which the family resided. The court says that the facts of the case brought it within the provisions of the statutes enacted to prevent the spread of infectious and contagious diseases and to protect and promote the health of the public. In carrying out the measures deemed necessary to protect the public health, the county health commissioner may act either in person or by deputy and may completely isolate the entire family afflicted with any disease liable to affect the public health. The fact that an indigent person was involved, and thereby items of expense were charged against the county that under ordinary conditions would have been charged to and paid by the individual citizen or by the township, did not change the character of the case or render the statute inapplicable.

The law takes cognizance of the fact that worthy, though indigent persons, as well as persons who belong to the pauper class and likewise those who are financially well to do, may be the victims of contagious or infectious diseases, and that their prompt isolation, care and treatment may be reasonable and necessary means of preventing the spread of the disease and protecting the public health. It is not the purpose of the law to pay for the care and treatment of afflicted persons who are amply able to pay such expenses for themselves, but it is the humane purpose of the health laws of Indiana to draw no fine distinctions which may prevent prompt action and delay efficient means designed to stamp out dangerous diseases and safeguard the public health. Where persons are so afflicted and so situated as in the case at bar, and are indigent and unable to pay for their necessary care and treatment, and the health commissioner has taken cognizance of the situation and appointed a competent physician to care for and treat the persons so isolated, maintain the quarantine and protect the public health, the jurisdiction and control of the health commissioner is complete, and the county may be held liable for all expense reasonably necessary to the protection of the public health. The decision of the health commissioner with reference to the necessity for action and the means to be employed, in the absence of connivance of fraud, is conclusive and final. The dominant purpose of the law is to protect and promote the public health. The fact that the means employed to accomplish the end in view incidentally benefits indigent persons unable to pay for their necessary care and treatment does not change the application of the law, but is clearly within the humane purposes of its enactment.

The changes in the statutes have centralized authority in the county health commissioner, and draw a clear line of distinction between indigent persons afflicted and quarantined as in the case at bar and the poor of the township under usual and ordinary conditions. There is no necessary conflict in the statutes when the purposes to be accomplished by the different laws are kept in mind and the emergencies are recognized which are necessarily encountered in protecting the public health. In this opinion the court is dealing with a case in which the afflicted persons were poor and unable to pay for medical treatment; but even in cases in which the afflicted and quarantined persons are able to pay for their care and treatment, under the present law, the decision of the health commissioner as to the means to be employed to protect the public health, including the care and treatment of such afflicted persons, is final and conclusive and binding on the county, unless the commissioner has abused the discretionary power lodged in him by the statute.

Refuses to Change Ruling Against Liability of Hospitals

(Magnuson v. Swedish Hospital (Wash.), 169 Pac. R. 828)

The Supreme Court of Washington affirms a judgment that dismissed the action brought by the plaintiff, a child, to recover damages alleged to have been sustained by him in that, after having been taken to the hospital and having had what was termed a severe surgical operation performed on him for a severe injury and physical malformation, the nurses negligently failed to guard him, by reason whereof he removed his hands from the bandages in which they had been placed and tore away the wrappings of the lacerated parts and otherwise seriously injured himself, so that the effectiveness of the operation was wholly destroyed and it was rendered impossible ever to cure the affliction from which he was suffering. The court says that the single question for determination was whether a patient admitted to a hospital maintained for charity can recover against such hospital for injuries caused by the negligence of nurses therein employed; but the judgment appealed from could not be reversed unless the former decisions of this court on the subject were overruled. Distinguished counsel for the plaintiff, with great earnestness and ability, insisted that the court should pursue the latter course, and adopt the rule announced by the Supreme Court of Alabama in *Tucker* v. *Mobile Infirmary Association*, 191 Ala. 572, 68 So. R. 4. But since it was conceded that the contrary rule is the one supported by the great weight of authority, and this court, unlike that one, is not free to act without constraint from former decisions on the subject, this court deems it better to adhere to its former decisions, which are confessedly in keeping with the rule announced in the vast majority of cases dealing with the question.

It must be admitted that there is some contrariety of opinion as to the true principles on which the rule of nonliability rests. One line of cases bases the doctrine on what is called "the trust fund theory," that is to say, that all funds of charitable corporations and associations are held in trust for the particular purpose for which the charity was founded, and it would amount to a breach of trust to apply them to other uses; that to give damages out of a trust fund would not be to apply it to the object which the author of the fund had in view, but would be to divert it to an entirely different purpose. Other cases lay stress on the idea that the rule of respondeat superior or let the master or superior answer does not apply to such institutions for the reason that the servants in the discharge of their duties are not engaged in work which is for the benefit or profit of the master. Still others proceed on the thought that one who accepts the benefit of the institution is taken impliedly to have assented to assume the risk of negligent injuries caused by servants properly selected and retained, or to have waived liability for such injuries. But regardless of the reasons on which the result is worked out, it cannot be doubted that the rule of nonliability is supported by the overwhelming weight of authority.

The question here involved seems peculiarly to have engaged the attention of the bench and bar of the country. The problem has been scrutinized from every conceivable point of view. The arguments for and against have well-nigh been exhausted, and little, if anything, now remains to be advanced. The doctrine now obtaining in this jurisdiction is undeniably in harmony with the consensus of judicial thought on the subject, and this court is not disposed to change it. While the application of the rule to individual cases may sometimes seem harsh and the result regrettable, there are very few doctrines of the law of which the same may not be said with equal truth. When viewed in the light of a broader vision, however, this court is convinced that the individual hardships wrought are offset many times over by the encouragement and stimulation which the rule of nonliability gives to the establishment and maintenance by private charity of institutions devoted to the care of the halt, the lame and the blind, and to the relief of those suffering from physical or mental disease and affliction.

Loss of Sight from Embolus Not Accidental

(Salinger v. Fidelity & Casualty Co. of New York (Ky.), 198 S. W. R. 1163)

The Court of Appeals of Kentucky says that the plaintiff, a merchant 60 years old and apparently in good health, while in the act of lifting a bundle of boxes filled with corsets, and weighing about 24 pounds, to a shelf somewhat higher than his head, noticed that he could not distinctly see the numbers on the boxes, and found that he had lost the sight of one of his eyes. The physicians agreed that he lost his eye from embolus, or a floating clot in the blood vessels, which caused the blindness by lodging in the central artery of his eye, thus cutting off the blood supply and preventing circulation. The court holds that his injury was not caused by accidental means within the terms of a policy of insurance against bodily injury sustained through accidental means and resulting directly, independently and exclusively of all other causes in total or partial disability, and that in this action on such a policy held by the plaintiff in the defendant company the jury was correctly instructed to find for the defendant.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirtieth Annual Meeting, held in Lenox, Mass., May 27-29, 1918

(Concluded from page 222)

Erosion of the Blood Vessels in the Course of Scarlet Fever

Dr. John Howland, Baltimore: A child, aged 5½ years, was brought to the hospital with a diagnosis of diphtheria. The child developed no characteristic eruption during its illness. Subsequently albumin was found in the urine, and it was thought that the child had postdiphtheritic diphtheria. Twenty-three days after the onset, the child became very ill and a necrosis of the right tonsil was found, with a very foul secretion and a characteristic scarlet fever desquamation. There was a mass the size of an egg in the right side of the neck from which 2 ounces of pus were evacuated, but no blood. In the middle of the night the child was found exsanguinated, lying in a pool of blood. It was given salt solution subcutaneously and transfused with 250 c.c. of the mother's blood intravenously. An attempt was then made to examine the abscess cavity, when there was a gush of blood, apparently from the external carotid or the lingual. These vessels were ligated and the hemorrhage controlled. Another transfusion was given, and after that the child improved for two weeks, when there was a second hemorrhage, the result of the sloughing of the suture on the external carotid. After this the child went on to recovery, though convalescence was complicated by a psychosis.

DISCUSSION

Dr. Howard C. Carpenter, Philadelphia: At the Municipal Hospital of Philadelphia we had a case of cervical adenitis which seemed to be progressing satisfactorily. While the intern was in an adjoining ward the child had a sudden hemorrhage, apparently from the carotid, and within two minutes it was dead.

A Case of Hirschsprung's Disease

Dr. Walter Lester Carr, New York: A girl, aged 6 years, was brought to the hospital in a condition of shock. The history stated that she had been constipated for five years and had vomited for twenty-four hours. The patient was cyanosed, the eyes staring, the temperature 97.5 F. and the pulse 120. The abdomen was distended, and there was a constant involuntary discharge of feces. The thirst was intense. Colonic irrigations of physiologic sodium chlorid solution were given with stimulation, heat, etc. The blood was viscid and not absorbed by Tallqvist paper. The child died eleven hours after admission. The anatomic diagnosis was Hirschsprung's disease, with secondary calcification of the lower part of the sigmoid and the upper part of the rectum.

A Case of Intussusception

Dr. Frank X. Walls, Chicago: This case is reported to record an observation that was made in the fluoroscopic examination of the lower bowel which revealed a picture of great diagnostic value that is not dwelt on in the literature of intussusception. The patient showed the typical symptoms suggestive of intussusception. Fluoroscopic examination after the injection of a barium buttermilk enema from a height of 18 inches disclosed the barium entering the bowel, filling it from below upward, until the mass reached the middle of the transverse colon. Here the column of barium halted a moment; then a small stream of barium trickled from the heavy column along the periphery of the colon for a distance of about an inch, and after this the column did not advance or alter its position. The arrested barium then looked like a solid mass with a very decided, concave U-shaped termination. The boy was operated on immediately after, and an ileocolic intussusception about 3 inches long was found and reduced. A long appendix that was engaged in the tumor mass was removed. Recovery was prompt.

Death From Tuberculous Meningitis in a Breast-Fed Infant at Ten Weeks of Age

Dr. DeWitt H. Sherman, Buffalo: This child was born in the winter, was breast fed, was not on the street, and the family history was negative as to tuberculosis. The child was taken ill at the age of 10 weeks and died seven days later. According to the statement of the child's father, a physician, the child showed no stupor or dullness. When I saw the child on the third day of its illness, the left eye was ptosed and the pupil of the left eye was larger than that of the right eye. The pupillary reaction was sluggish. There was some bulging of the anterior fontanel, slight rigidity of the neck, doubtfully exaggerated patellar reflexes, and the child could be aroused but made no further response. All other signs and symptoms of meningitis were wanting, except for slight twitching of the angle of the mouth. A specimen of the spinal fluid stained for tubercle bacilli showed only eight bacilli of the human type. The colloidal gold test gave no reaction that was significant in any way. A second lumbar puncture was done, and three guinea-pigs were injected. The findings in the three animals were practically the same, showing extensive tuberculous involvement of the liver, spleen and abdominal lymph glands. The lungs showed only a few scattered tubercles.

Use of Vegetable Milk

Dr. Henry Dwight Chapin and Dr. Ludwig Kast, New York: This milk is prepared from almonds which are first ground fine, covered with water, and allowed to stand in the icebox over night. The following day they are pressed out with a potato ricer or a fruit press, or they may be pressed out by hand through four layers of gauze. One hundred gm. of nuts may be covered with 200 gm. of water, and when they are pressed out they may be diluted up to 300 c.c. with water. The almond milk possesses certain advantages. It ferments much less easily than ordinary cow's milk; it has a higher fat ratio in the form of almond oil, which is sufficiently emulsified to render it easily digestible; the proteins contained in this milk are much less apt to undergo putrefaction than in the casein of cow's milk; almond milk contains a large amount of phosphorus and a small quantity of sodium chlorid, which would suggest its favorable employment in such conditions as rickets and nephritis; from its low carbohydrate content it will readily be seen that it is less likely to cause sugar fermentation. It has been tried in more than 1,000 adults, and while some dislike it, actual disturbances have never been caused. So far no patients have shown an idiosyncrasy to it. This preparation is rich in vitamins. While we do not recommend its permanent use, it is desirable and useful as a temporary substitute, and has served a good purpose in such conditions as nephritis, typhoid, intestinal putrefaction, malnutrition, and secondary anemia.

Are the Present Frequency of Acute Otitis Media and the Subsequent Mastoid Operation in Some Measure a Reproach to Pediatrics?

Dr. Thomas S. Southworth, New York: During the past winter I have had twenty-five cases of acute otitis media in a service averaging eighty infants under 15 months of age. These have been under the supervision of a visiting otologist, who has found in five of them indications of mastoid involvement; yet all have escaped operation, and discharge has ceased under treatment in all of the infants save one, which is nearly well now.

DISCUSSION

Dr. Samuel S. Adams, Washington, D. C.: The preparations usually employed for allaying earache are a preparation of phenol, epinephrin and cocain. I have found that a 5 or 10 per cent solution of phenol in glycerin frequently allays earache, where there is inflammation of the middle ear; that is, where the membrane is red and inflamed but not bulging. When the membrane is bulging I believe we ought to call a skilled otologist.

Dr. Godfrey R. Pisek, New York: Some otologists tell us that every discharging ear is partly a mastoid infection and that drainage of the external ear does little good, the only way to get proper drainage being to open the mastoid. I think the otologist often leans more to the side of operation, feeling that he takes fewer chances by so doing.

Dr. Fritz B. Talbot, Boston: The problem of prevention lies in the prevention of colds, which are the cause of most ear troubles. There is one other thing important in the prevention of ear troubles. The baby's nose should be wiped and not blown, and the same applies to older children.

Dr. I. A. Abt, Chicago: The membrane should be punctured only when there is bulging of the drum or a reasonable suspicion that there is pus in the middle ear. In the exanthemas and grippal diseases the pathologists tell us that there is more or less inflammation of the mastoid and antrum, and many of these patients recover without operation. One pathologist in Europe states that as many as 90 per cent. of children with exanthems and grippal infections have mastoid inflammation.

Dr. Henry Heiman, New York: I used to have three or four mastoid operations a year, whereas I now have only about one in ten years. Blowing of the nose in children tends to cause infection of the middle ear. It should also be remembered that snuffing salt water is a very dangerous procedure. Some teach that every red drum membrane should be opened. Frequently it is better to wait a little if one can see the patient every day. I have seen as many mastoids follow incision of the drum as in cases in which I have allowed the membrane to remain red for some time.

Dr. L. E. Holt, New York: It is wise to protest against too many mastoid operations. In the Babies' Hospital we have otitis all the time, perhaps twenty-five or thirty cases, and I think we have had only one mastoid operation in three years.

Dr. Alfred F. Hess, New York: In an institution in which there are 400 children, in the last five years we have had four cases of mastoiditis and we have had no cause of sinus thrombosis. The plan we have carried out is to puncture red and bulging ear drums.

Dr. Herbert B. Wilcox, New York: Many ear drums have been devitalized by douching with hot water, and the superficial layer of epithelium may be raised like a blister. Such an ear we need at times only incise through the outer layer and not through the drum.. There is one point that the pediatrician fequently neglects; he may open the drum and evacuate pus and neglect to take a culture. Later if an otologist is called in he may have difficulty in interpreting the condition because he does not know what organism is causing it.

Relative Morbidity of Breast and Bottle Fed Babies

Dr. H. M. McClanahan, Omaha: A questionnaire was sent to all the members of the American Pediatric Society and to thirty-nine other physicians in various parts of the United States asking their experience as to the relative susceptibility of breast and bottle fed infants, in reference to contagious and infectious diseases, and in reference to general infection. Questions were also asked as to the relative rate of growth and development, physical and mental, of breast and bottle fed infants, and requests were made for literature on the subject. An analysis of the seventy answers received may be thus summarized: 1. Superiority of breast milk may be due to chemical and biologic differences which render it more readily usable by the infant. As a result it has a more natural energy which it can apply to the invading organisms. 2. Breast milk may contain natural antibodies or protective ferments, both specific and nonspecific. 3. Breast fed infants are less susceptible to infections, the two exceptions being influenza and tuberculosis. 4. Breast fed infants resist infection more quickly and with less injury. 5. Breast fed infants have less morbidity than properly fed bottle infants; the larger group of badly fed infants have a still greater disadvantage.

Disadvantages of Low Fat Percentages

Dr. Alfred Hand, Philadelphia: Anything less than 2 per cent. is a low fat percentage; from 2 to 3 is moderately low; from 3 to 3.5 is a fair percentage; from 3.5 to 3.8 is normal, and anything above 4 is a high fat percentage in the artificial feeding of infants. If a low fat percentage is given over a long period, the general nutrition of the child is more or less permanently damaged. Children brought up on condensed milk and other proprietary foods with low fat and high carbohydrate content as a rule show distinct evidence of rickets. Constipation and failure to gain in weight are the two conditions that may be troublesome with the low fat percentages, and low protein as well, unless the carbohydrates are raised considerably above the amount existing in either human or cow's milk. As a temporary measure this may be of value, but it has always appeared to me as of more lasting benefit to overcome the constipation and increase the weight by raising the fat percentages as rapidly as possible. Several factors that seem to influence the handling of fat in the dietary are climate and the breed of cows. A child that may show intolerance to fat in the summer will handle, when cooler weather comes, even a high fat percentage with ease. The milk of cows containing 5 per cent. of fats is not as suitable for infant feeding as that containing 4 per cent. Cases are cited in which low fat percentages have been given evidently to the detriment of the baby.

DISCUSSION

Dr. Henry Dwight Chapin, New York: I am thoroughly in accord with Dr. Hand that there seems to be a sort of fat "phobia," because, I think, there has been an undue stressing of the fat percentages. While we may substitute one food element for another for a short time, we cannot make this substitution for any length of time without injury to the infant.

Dr. Thomas S. Southworth, New York: Children who have had difficulty in digesting fats should not be deprived of fats for a long period; but when a child has been given a normal amount of fat for an individual of his age, and digestive disturbances have occurred, and when the child has improved after the withdrawal of the fat, it is well to remember that certain risks are run by giving excessive amounts of fat. I have increased fats and improved the condition of the child, and I have lowered the fats and improved the child's condition.

Dr. John Lovett Morse, Boston: I feel very strongly that babies are not given sufficient amounts of fats in artificial foods for their best good. One reason for feeding low fats is the inherent laziness of some physicians, who find it easier to give whole milk mixtures rather than to figure out the proportion of fat and examine the stools. While babies should have fat in reasonable amount, it is only in exceptional instances that they can take over 4 per cent.

A Protective Therapy for Varicella, and a Consideration of Its Pathogenesis

Drs. Alfred F. Hess and Lester Unger, New York: Thirty-eight children, between 3 and 4 years of age, were vaccinated intravenously with varicella vaccine. None of these children developed any local or general signs or any eruption suggestive of varicella, though all were in contact with one or more cases of varicella, with the exception of one child who developed the disease thirty-six days after the inoculation. Vaccinations of this kind induce neither local nor general reaction.

DISCUSSION

Dr. Fritz B. Talbot, Boston: Since we do not know how the virus of varicella is transmitted, I should like to know how Dr. Hess knows that the thirty-eight patients were exposed to varicella. Again, how many children, as controls, had the same exposure? I do not feel convinced that the point has been proved.

Dr. Charles Herrman, New York: Is Dr. Hess certain that the children that were not born in the institution never had varicella? If immune bodies are formed, one would expect to see some febrile reaction, and Dr. Hess says there was no such reaction.

Dr. Alfred A. Hess, New York: These thirty-eight children were in a ward in which there was chickenpox on two or three occasions and only one child developed chickenpox. It is possible that some of these children may have had the disease, but we had the history of all the children, and we looked for pox marks in every instance. However that may be, the number of vaccinated children that contracted the disease was in striking contrast to the number that usually take the disease. As to the absence of a febrile reaction, it is to be remembered that there is not a very marked febrile reaction in the disease itself, and if antibodies are being formed it is not to be expected that the reaction will be sufficient to cause fever.

Intrathecal Injections of Normal Horse Serum in the Treatment of Chorea

Dr. Langley Porter, San Francisco: Intrathecal injections of horse serum have been administered to seven children suffering from chorea, and another patient has been treated by the method which Mahrtens of Stanford University is using in the treatment of cerebrospinal syphilis; that is, the injection of arsphenamin from six to twelve hours after the initial intrathecal dose of horse serum. One-half hour after giving an initial 0.5 c.c. of horse serum in order to find out whether the patient is hypersensitive to horse serum, 20 c.c. of normal inactivated horse serum were injected intrathecally. Five of the patients received a second injection on the fourth, fifth and sixth days following the initial dose. These injections have been instrumental in gaining striking and rapid improvement in most cases, but no improvement has been such that a cure could be claimed on the basis of "absolute" cessation of all twitching within a week. In fact, only in the mild cases was the twitching absent after two weeks. Our experience, however, has been such that we have a right to hope that further investigation will establish the serum as a valuable measure in the treatment of selected cases of chorea.

DISCUSSION

Dr. Oscar M. Schloss, New York: We used this serum treatment in twelve cases, and those twelve patients did not do better than twelve control patients that did not get the serum. Some choreics may become better after the first, the second or the third dose, but frequently one sees the same thing in children treated by the usual means.

Dr. Charles Herrman, New York: Was a certain amount of spinal fluid removed before the serum was employed? Was there an improvement after the withdrawal of the spinal fluid? It is possible that improvement may result from the relief of intraspinal pressure.

Dr. L. E. LaFetra, New York: In giving the serum treatment for chorea, it is not altogether a simple matter to draw off the blood, keep it sterile, and then inactivate it. For some reason we did not get brilliant results from the treatment Dr. Goodman recommends, and we did not feel that we were justified in continuing to use it.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

June, 1918, 46, No. 3

1 Regulation of Renal Activity. Balance Between Regulation by Epinephrin and Pituitary Extract. T. Addis, A. E. Shevky and G. Bevier, San Francisco.—p. 129.
2 Effect of Holding Breath and of Rebreathing on Rise of Carbon Dioxid Tension in Lungs, and Determination of Carbon Dioxid Tension of Venous Pulmonary Air. H. Laurens, New Haven, Conn.—p. 147.
3 Location of Epinephrin Vasodilator Mechanisms. F. A. Hartman, L. G. Kilborn and L. Fraser, Toronto.—p. 168.
4 Metabolic Gradient Underlying Intestinal Peristalsis. W. C. Alvarez and E. Starkweather, San Francisco.—p. 186.
5 Secretin. Its Mode of Action in Producing an Increase in Number of Corpuscles in Circulating Blood. A. W. Downs and N. B. Eddy, Montreal, Canada.—p. 209.
6 Response of Vasomotor Mechanism to Reflex Afferent Nerve Stimulation. C. M. Gruber and O. S. Kretschmer.—p. 222.
7 Action of Autonomic Drugs on Surviving Stomach. M. I. Smith, Omaha.—p. 232.
8 Experimental Studies on Regulation of Body Temperature Normal Temperature Variations and Temperature Effects of Operative Procedures. L. M. Moore, San Francisco.—p. 244.
9 Id.: Relation of Corpus Striatum to Regulation of Body Temperature. L. M. Moore, San Francisco.—p. 253.
10 Nursing Mother as Factor of Safety in Nutrition of Young. E. V. McCollum and N. Simmonds, Baltimore.—p. 275.
11 *Shock and Circulatory Failure Following Trauma. C. J. Wiggers, New York.—p. 314.

11. Shock and Circulatory Failure Following Trauma.—Wiggers investigated the question whether pain and trauma can produce shock in experimental animals and compared the dynamics of the circulation in this condition with that following intestinal exposure. He found that a state of shock involving the central nervous system can be produced experimentally by trauma. This state may persist from two to five hours, after which recovery sets in; or it may be fatal. Prolonged sensory stimulation may cause a temporary depression of the functions of the central nervous system but in itself does not lead to permanent changes or death. Central nervous system shock never occurs without circulatory involvement which is always clearly indicated in optically recorded pressure curves from the arteries but is not necessarily evident in the mean pressure variations as given by the mercury manometer. In the milder cases of shock, that is, in those terminating in recovery, the circulatory derangement corresponds essentially to that described as characteristic in the initial and early progressive stage of circulatory failure in abdominal shock. Optical arterial pressure tracings show that a diminished volume of blood is contained in the arterial trunks and that the peripheral flow is thereby reduced. In most instances this is solely due to a reduction of the total arterial resistance while the effective venous pressure becomes somewhat increased through the mechanical effects of prolonged deep breathing. In a few cases only was the effective venous pressure reduced somewhat and constituted the main cause of arterial depletion.

In severe forms of shock, that is, in those terminating fatally, the initial stage in which reduced peripheral resistance plays a rôle is of short duration, the effective venous pressure falls early, reaches a low level and by reducing the cardiac discharge, is the chief cause of complete circulatory failure. The dynamic changes of the circulation which lead to progressive and complete circulatory failure are not essentially different in shock produced by trauma and that produced by intestinal exposure. The differences, if any, are in degree and duration of the respective phases but not in the character of the disturbance. Considering all the available evidence, two factors may be said to be concerned in circulatory failure accompanying shock: (*a*) the reduction of peripheral resistance; and (*b*) the fall of effective venous pressure, decreasing the systolic discharge.

American Review of Tuberculosis, Baltimore

June, 1918, **2**, No. 4

12 *Medical Aspects of Framingham Community Health and Tuberculosis Demonstration. D. B. Armstrong.—p. 195.
13 Tuberculosis Survey of Residents of Saranac Lake, New York. F. B. Ames, Boston.—p. 207.
14 Tuberculosis Among Immigrants. W. L. Rathbun, Otisville, N. Y.—p. 237.

12. **Medical Aspects of Framingham Demonstration.**—The general death rate, corrected for nonresidents, has averaged 13.65 per thousand for the last ten years in Framingham (1906 to 1916). In 1917 the general death rate was 11.1 The infant mortality rate in Framingham for the previous ten year period was 81 per thousand born. In 1917 it was 73. The tuberculosis death rate, corrected for nonresidents and for errors in death certifications, averaged for 1906 to 1916 approximately 121.5 per hundred thousand. In 1917 the rate was 99.6. Armstrong says that the Framingham Community Health and Tuberculosis Demonstration aims to be not only an investigation and an experiment in community disease control; it should be also a demonstration of a community method, successful or not, as events prove, of disease prevention and health administration. The latter aspect especially will be of wide interest.

An accurate presentation of the findings of this social laboratory, is therefore of value. It may be that the *results* of the Framingham, experiment will be more important than the *result*. In any event, knowledge of the progress of the work may stimulate similar studies elsewhere. Thus far the health experiment has apparently demonstrated the importance of sympathetic cooperation from local and outside agencies, as a basis for community social control over disease producing factors. It is the hope and anticipation of the committee that further developments will demonstrate that on a community basis, disease may be prevented and health created, thereby laying a permanent physical foundation for future social economic and spiritual evolution.

Annals of Surgery, Philadelphia

June, 1918, **67**, No. 6

15 Congenital Variations in Peritoneal Relations of Ascending Colon, Cecum, Appendix and Terminal Ileum. S. C. Harvey.—p. 641.
16 *Multiple Myelomas and Their Ability to Metastasize. D. Symmers, New York.—p. 687.
17 Prognosis and Treatment of Empyema. J. Homans, Boston.—p. 697.
18 Treatment of Penetrating Gunshot Wounds of Chest with Hemorrhage into Pleura. L. W. Hotchkiss, New York.—p. 707.
19 *Relation of Gastric Ulcer to Cancer. J. Ewing, New York.—p. 715.
20 *Cautery Excision of Gastric Ulcer. D. C. Balfour, Rochester, Minn.—p. 725.
21 Relief of Umbilical Hernia by Condemin-Ransohoff Technic. H. B. Delatour, Brooklyn.—p. 732.
22 Congenital Idiopathic Dilatation of Colon or Hirschsprung's Disease. S. Graves, Louisville, Ky.—p. 734.
23 Mechanical Derangement of Knee Joint. M. S. Henderson, Rochester, Minn.—p. 738.

16. **Metastasis of Multiple Myelomas.**—Symmers says that his case and a case recorded by Christian represent the only really indisputable examples of genuine metastatic myeloma, effectually violating the generally accepted dictum that the myelomas do not metastasize by cell transplantation. His patient, a man, aged 51 years, was admitted to the hospital in a semicomatose state with the classical signs of cardiac decompensation. Eight years before the patient suffered a fall, striking the right shoulder. For a year thereafter the shoulder was more or less swollen and painful. For three months previous to admission the patient complained of rheumatic pains in the right shoulder, and finally lost the use of the arm entirely, but whether suddenly or not the history does not state. Physical examination showed marked enlargement of the heart and a double murmur at the base. The head of the right humerus was markedly enlarged and crepitation was felt. The urine revealed no Bence-Jones protein. The man died.

On the side of the head, about 3 cm. back of the external angle of the left eye, was a slightly elevated, circular growth which projected directly through the outer table of the skull and was delimited by a rim of bone. The skin over it was intact. The upper third of the right humerus was greatly enlarged and the bone was fractured. The medulla of this part of the humerus was occupied by a quantity of grayish red, soft tumor material. In the medulla of the third rib on the right side about an inch from the costochondral junction was a small, reddish nodule, soft in consistence, the hard bone on either side being intact. In the intercostal muscles between the sixth and seventh ribs on the right side was a mass of reddish tumor tissue, the ribs on either side being intact. Lying in the fat tissues immediately adjacent to the left suprarenal capsule was a soft reddish nodule which was rounded and measured 1.5 by 2 cm. The vertebrae were intact throughout.

Microscopic examination of the tumors in the humerus, in the third rib, in the intercostal muscles and in the fat around the suprarenal revealed growths composed, for the greater part, of rather large, rounded or polygonal cells, each of which enclosed an excentrically placed nucleus with a fine chromatic reticulum and coarser chromatic particles arranged at irregular intervals against the cell membrane. The cytoplasm was pale or slightly pinkish in color and smooth. Scattered among these cells, which were of the type usually described as myeloblasts, were fairly large numbers of cells whose nuclei presented slightly different structural characteristics in that the chromatic network was stippled with coarse granules, thus corresponding to the nuclei ordinarily encountered in the so-called plasma cell. In certain sections a third type of cell was found, likewise in fairly large numbers. These cells varied in size. Each was provided with a densely staining, small nucleus, often excentrically placed, and with very finely granular, reddish staining cytoplasm. They were evidently degeneration forms.

19. **Relation of Gastric Ulcer to Cancer.**—According to Ewing the cancerous transformation of peptic ulcer is rather infrequent and probably does not exceed the incidence of 5 per cent. originally established. This proportion would be much smaller if only those cases were included in which the evidence is demonstrative, namely, a long history of gastric ulcer, the limitation of the tumor to isolated foci or one portion only of the ulcer, and freedom of the base from infiltration.

20. **Cautery Excision of Gastric Ulcer.**—The low operative risk of cautery excision and gastro-enterostomy is shown by the fact that in the 186 cases in which this was the major operation there were two deaths, giving a mortality in the series of only 1 per cent. The necropsy findings in each of these two cases demonstrated that the field of operation was in perfect condition; the cause of death in one being pulmonary embolus on the eighth day and in the other pneumonia on the twentieth day. In comparing these statistics with those of knife excision and gastro-enterostomy Balfour finds that in the eighty-nine cases in which operation was done by this method three deaths occurred, a mortality of 3.3 per cent. The convalescence of the patients in whom cautery excision and gastro-enterostomy are done is uniformly smooth, and the clinical postoperative course bears out Carman's observation that better gastric motility is attained than in those operations (particularly excision of a V-shaped segment in the lesser curvature) which entail greater damage to the musculature of the stomach.

The reports of the late results are most favorable. Of the sixty-one cases in which the cautery was used in 1914-1915 Balfour has positive information in fifty-five. In this number there have been four deaths from all causes since operation, two already mentioned following operation, the other two of unknown causes at their homes in the three or four years after leaving the clinic. Of the remaining fifty-one cases operated on in the two years 80 per cent. of the patients report a satisfactory result (cured and greatly improved), 18 per cent. were improved in the sense of amelioration of symptoms present previous to operation, while in no instance did a patient report that he had not obtained relief from the operation. The cases of knife excision and gastro-enterostomy in this period show corresponding figures of 70 and 15 per cent., while 15 per cent. of the patients state they are no better. These figures of mortality and late results have more force when it is remembered that the knife excision cases are essentially selected, inasmuch as this operation is done only when conditions are favorable, while the cautery is often employed in the very case in which excision is unwarranted because of the size, fixity and situation of the ulcer.

The apparent advantages of the method may be summarized as follows: 1. The cautery efficiently destroys the focus of infection in gastric ulcer without the sacrifice of Nature's protective induration surrounding the ulcer crater. 2. It may be applied in a large percentage of gastric ulcers. 3. It entails a minimum of operative risks. 4. Clinical and roentgenologic evidence show better motility and function than follow knife excision and gastro-enterostomy. 5. It has a particular efficiency in obviating early and late postoperative hemorrhage. 6. The late results are better than those obtained with any other method. 7. It can be used in cases in which no other means of direct attack on the ulcer is justifiable. 8. It is probable that in gastric ulcer cautery, like knife excision, should always be combined with gastro-enterostomy.

Archives of Internal Medicine, Chicago

June, 1918, **21**, No. 6

24 *Renal Glycosuria. A. H. Beard and F. Grave, Minneapolis.—p. 705.
25 Salt Metabolism in Diabetes Mellitus. A. H. Beard, Minneapolis.—p. 716.
26 *Eggleston Method of Administering Digitalis. S. M. White and R. E. Morris, Minneapolis.—p. 740.
27 *Antigen-Antibody Balance in Lobar Pneumonia. F. G. Blake, Minneapolis.—p. 779.
28 *Brain Changes Associated with Pernicious Anemia. H. W. Woltman, Minneapolis.—p. 791.

24. **Renal Glycosuria.**—So-called renal diabetes has been reported at various times in the literature. The term is now recognized as a misnomer and the condition should be called renal glycosuria. True cases of renal glycosuria are rare and many so diagnosed are open to question, being mild or atypical diabetes mellitus. The lesion is apparently renal and due to a constant excretion by the kidney of a small amount of sugar while the blood sugar is normal. The tissues can still utilize carbohydrates, and as a result on any diet the percentage of sugar excreted does not vary to any great extent. The glycosuria is usually found by accident or routine examination, the patient reporting for life insurance or irrelevant illness. Most of the patients do not present any of the clinical symptoms of diabetes mellitus and are apparently in good health. Pathologically, the glycosuria seems to be due to a lowered kidney threshold for carbohydrates.

Beard and Grave report a case which on admission was thought to be one of atypical diabetes and the usual routine treatment was given in preparation for starvation, namely, the fats were first eliminated from the diet. After four days' starvation, glycosuria was still present and the blood sugar remained at the same level as on admission. A low caloric diet was next administered and starvation was later repeated. The glycosuria still persisted and the blood remained unchanged to any great extent. On account of this fact the dextrose-nitrogen ratio was determined. After a constant diet of protein and fat for six days, the glycosuria disappeared. The next few days, on starvation, glycosuria was absent, this being the only time during her stay in the hospital that the patient was sugar-free. It was thought the case might correspond to the usual diabetic treatment, but on a diet containing 7 gm. of carbohydrate the sugar output was 7 gm. The blood sugar still remained fairly constant. The diagnosis of renal glycosuria now seemed to be confirmed, and during the remainder of her stay in the hospital the patient was treated for this condition.

26. **Digitalis by Eggleston Method.**—White and Morris are of the opinion that the Eggleston method is a valuable addition in digitalis therapy, that it gives confidence in the use of the drug, and that the shorter time necessary for securing digitalis effects should give the method wide use. The method must be used with care to select cases in which these effects are desired. Cases of acute or chronic infections, with the probability of the presence of endocardial infections, should be given the method—if at all—only after careful study, because of the possibility of embolism and of associated myocardial changes predisposing to block. The Eggleston method, in cases of decompensation with auricular fibrillation, gives strikingly favorable results. The Eggleston method, with 3 or 4 c.c. or more of the tincture daily for several days, has resulted, once in partial and once in complete heart block.

27. **Antigen-Antibody Balance in Pneumonia.**—Blake found that there is a definite relation between the excretion of soluble pneumococcus antigen in the urine and the development of precipitins in the blood in lobar pneumonia. The development of agglutinins in the blood bears no definite relation to the excretion of soluble antigen in the urine. The curve of concentration of precipitins does not parallel the curve of concentration of agglutinins. Pneumococci disappear from the blood prior to or coincident with the appearance of agglutinins. The balance between antigen and antibody bears a definite relation to the course and outcome of lobar pneumonia, (*a*) in that cases developing an excess of precipitins and agglutinins have invariably recovered shortly after or coincident with the appearance of these antibodies; (*b*) in that cases showing a progressive increase in the excess of antigen without the development of demonstrable antibodies have invariably been fatal. Daily estimation of the concentration of soluble antigen excreted in the urine and of the number of pneumococci per cubic centimeter of blood have been of great prognostic value in the individual case.

28. **Brain Changes and Pernicious Anemia.**—Woltman examined the brains of seven persons who died of primary idiopathic pernicious anemia. The most salient features in the pathologic anatomy of these brains, were the following: 1. Not only do degenerated areas of the Lichtheim type, such as are typically found in the posterior and lateral funiculi of the spinal cord in pernicious anemia patients, occur in the medullary portions of the brains of these cases, but they occur with about the same frequency, though their demonstration may be rendered more difficult. 2. Patients who show degenerative changes in the spinal cord at necropsy, usually show the same type of lesion in the brain also. 3. In addition to these focal degenerative areas found in the white matter, which may or may not be associated with blood vessels, one also finds a diffuse degeneration, which, though it is, as a rule, somewhat more striking in the long association tracts, also occurs in the short commissural fibers passing from one gyrus to another, thus rendering the view untenable that it is the distance of these fibers from their trophic centers which is instrumental in causing the degeneration. 4. The gray matter is by no means immune from the destructive process. This is usually focal in character, and begins around the pyramidal cells of the marginal gray layer, the cells themselves being ultimately destroyed in the process, this, in turn, giving rise to a secondary and very diffuse degeneration of the medullated fibers in the white matter. 5. Though some degeneration was noted in the fibers of the internal capsule and in the long tracts passing through the pons, the degeneration at this level was less intense than that seen either in the cord or in the brain. 6. The appearance of these plaques, not only around the blood vessels but also around some of the larger pyramidal cells, seems additional evidence that lymph stasis is an important factor in the production of these foci. 7. Well marked psychoses, such as are occasionally associated with pernicious anemia, probably have little or nothing to do with these destroyed areas. 8. The milder mental manifestations such as somnolence, apathy, and terminal delirium are probably in a measure dependent on these lesions, though the chief causative agent of these symptoms is probably the toxin itself.

Arkansas Medical Society Journal, Little Rock

June, 1918, **15**, No. 1

29 War and Sanitation. R. Blue, Washington, D. C.—p. 4.

Boston Medical and Surgical Journal

June 27, 1918, **178**, No. 26

30 Get Lean and—Homely. G. Van Ness Dearborn, Cambridge.—p. 887.
31 Hearing Test Apparatus. J. Prenn, Boston.—p. 896.
32 Idiopathic Epilepsy a Sympathicopathy. E. A. Tracy, Boston.—p. 897.

July 4, 1918, **179**, No. 1

33 *Sugar in Its Relation to Infant Feeding. L. W. Hill, Boston.—p. 1.
34 Dental Diseases in Relation to Diseases of Nose and Throat. K. H. Thoma, Boston.—p. 17.

33. **Sugar in Its Relation to Infant Feeding.**—Sugar is necessary to life. The importance of sugar for fuel is shown in breast milk, of which 48.7 per cent. of the calories are furnished by the sugar. The feeding of large amounts of sugar may cause a rapid increase in weight, provided the sugar is well digested. The stools of a breast fed baby are normally quite strongly acid in reaction, due to the large amount of sugar and fat in breast milk. A baby takes relatively much more sugar than does an adult, and the assimilation limit is much higher in infancy than it is in later life. Two things are necessary for sugar fermentation; undigested sugar free in the intestine, and bacteria in sufficient quantity to attack it. Overfeeding with sugar, either given as too much food as a whole or as a too high sugar percentage, may cause fermentation. Overheating is of great importance in bringing about sugar fermentation. Infections of various sorts in other parts of the body than the digestive tract are important as a cause of sugar fermentation. Nervous exhaustion and excitement may also bring about sugar fermentation by suppressing the secretion of the intestinal juices, and possibly by increasing intestinal peristalsis, in which case time is not given for the proper digestion of the sugar in the small intestine, and it proceeds to the large intestine, where it ferments. As a last and important cause of sugar fermentation, constitutional weakness of the baby is to be considered. Inasmuch as lactose is the natural sugar which a baby gets in breast milk there is no reason for feeding normal babies on any other sort of sugar. Babies vary immensely in the amount of sugar that they can take. The usual rule is not to exceed 7 per cent. of sugar in the formula. Many cases of mild sugar fermentation may be controlled by simply diluting the food for a few days or by omitting all added sugar. The more severe cases will require further treatment; castor oil or calomel. Feed a low percentage of sugar; never let a baby with sugar fermentation get into a "dried out" condition.

In severe cases of sugar fermentation, when the breathing is of the hyperpneic type, alkali administration is advisable, as acidosis probably exists. Sodium bicarbonate is the best alkali to use, and should be given either by mouth or intravenously; 30 grains every two hours can be given to most babies. Soda should be pushed until the urine becomes alkaline. If the baby is unable to retain soda by mouth, which is very likely, it must be given intravenously. A 4 per cent. solution may be used, and, depending on the size of the baby, from 75 to 150 c.c. of this may be given. Intestinal irrigations with normal saline used at the beginning of the attack may be of considerable value in emptying the colon of toxic products. They have, however, little place in the latter treatment, and in most cases when used as a daily routine do more harm than good, by irritating and disturbing the child. In most cases of sugar fermentation drugs are of little value. Chalk mixture or bismuth may be given. Intestinal antiseptics, such as salol, calomel, etc., are of no value, and should not be given, as it is quite impossible to sterilize the intestine, or to influence its bacterial flora enough to amount to anything in this way.

Opium in some form, usually as paregoric, has a definite place in the treatment of some cases of sugar fermentation. It should never be given as a routine, but only when the watery diarrhea and tenesmus are so excessive as to exhaust the child. Stimulants may often be needed. The most valuable are caffein camphor in oil, epinephrin and brandy. Hill prefers caffein citrate, or caffein sodium benzoate, subcutaneously, given in rather large doses. The subcutaneous injection of 1 or 2 minims of a 1:1,000 epinephrin chlorid solution may be of service where there is circulatory collapse with very low blood pressure. Its action is, however, only fleeting. Briefly, the two most important things in the treatment of sugar fermentation are proper feeding, and plenty of water; most cases may be controlled by these alone, without the use of any other special methods of treatment.

Indiana State Medical Association Journal, Fort Wayne

May, 1918, **11**, No. 5

35 Public Health Work in Indiana. J. N. Hurty, Indianapolis.—p. 181.
36 Diagnosis of Heart Disease. G. W. McCaskey, Fort Wayne.—p. 187.
37 Step Forward in Use of Army Litter. G. B. Kent.—p. 191.

Kentucky Medical Journal, Bowling Green

July, 1918, **16**, No. 7

38 Skin Lesions Due to Focal Infection and Septicemia. M. L. Ravitch, Louisville.—p. 288.
39 Diagnosis and Treatment of Paresis by General Practitioner. G. P. Sprague, Lexington.—p. 290.
40 Diagnosis of Gallbladder Disease. A. W. Nickell, Louisville.—p. 292.
41 Brain Surgery. J. G. Sherrill, Louisville.—p. 298.
42 History and Present Status of Birth and Death Registration in Kentucky. P. E. Blackerby, Bowling Green.—p. 306.
43 Valvular Heart Disease. E. D. Turner, Cave City.—p. 307.
44 Smallpox; Report of Cases. E. L. Palmore, Hiseville.—p. 309.
45 Treatment of Chronic Conjunctivitis. R. H. Cowley, Berea.—p. 311.
46 Pneumonia. C. D. O'Hara, Williamstown.—p. 311.
47 Empyema. T. J. Marshall, Bardwell.—p. 313.
48 Fractures of Skull. W. W. Tarvin, Covington.—p. 314.
49 Extensive Burns of Body. J. F. Dunn, Arlington.—p. 316.
50 Malignant Ulcers of Cervix O. W. Brown, Lenoxburg.—p. 318.
51 Clinical History and Symptoms of Abdominal Tumors, Especially Ovarian Cysts; Report of Case. W. F. Gardner, Carrsville.—p. 320.

Medical Record, New York

July 6, 1918, **94**, No. 1

52 *Thoracic Surgery. S. J. Meltzer, New York.—p. 1.
53 Relation of Internal Secretions and Faulty Metabolism to Mental Perversions. B. C. Keister, Roanoke, Va.—p. 4.
54 Death and Its Semitic Traditions. J. H. Marcus, Atlantic City, N. J.—p. 7.
55 *Treatment with Digitalis Preparations. E. Zueblin, Cincinnati.—p. 13.
56 Vaccine Dosage in Elimination of Systemic Effects of Mouth Infections. J. Head, Philadelphia.—p. 17.

52. **Thoracic Surgery.**—Meltzer says that the most desirable object in thoracic surgery is the proper development of exploratory thoracotomy with the object of using it in the same manner and for the same purpose as exploratory laparotomies are used, that is, in the first place for making a proper diagnosis. He believes that in some conditions the exploratory incision in itself may even exert a therapeutic effect. On the other hand, Meltzer would rather counsel conservatism in the attempts to perform untried and unstudied methods of operation. Occasional success rapidly leads to repetitions and numerous failures, and this discredits thoracic surgery. Patient, practical, and experimental studies should be the means of paving the way to the final success in thoracic surgery. He also proposes that large intercostal incisions should be made for the treatment of pulmonary tuberculosis. If the procedure does not interfere with the respiration, that is, if it proves that the mediastinum sufficiently protects the respiratory activities of the lung in the opposite cavity, steps should be taken to keep the incision open for a longer period. If the lung of the opposite side is also affected, the same procedure should be followed out later when the first incision is healed. The idea underlying this suggestion has nothing in common with the method of treatment by means of insufflation of nitrogen in the pleural cavity. Meltzer's suggestion is stimulated by the experience of the curative effect of laparotomy on tuberculous peritonitis; the introduction of nitrogen or oxygen into the peritoneal cavity exerts no such curative action. Meltzer throws out the further hypothesis that the moderate distentions of the partly adherent exposed lung may rather prove to be a favorable factor in the possible therapeutic acton of a thoracotomy.

55. **Treatment with Digitalis Preparations.**—Zueblin's investigation has shown that the cardiovascular remedies are not constant in their physical properties; that they undergo changes as they become older, particularly as regards the ionization studied by means of the fontactoscope. It was found that notwithstanding a careful storage, excluding light and humidity, these changes take place. Furthermore, by exposing digitalis preparations to the action of high frequency waves, these drugs present a higher degree of ionization after such treatment.

Michigan State Medical Society Journal, Grand Rapids

July, 1918, **17**, No. 7

57 Surgical Conditions of Knee Joint. R. C. Andries, Detroit.—p. 291.
58 Relation of Medical Profession to Municipaly Controlled Medical School of Detroit. A. P. Biddle, Detroit.—p. 295.
59 Severed Right Femoral Artery. D. L. Stilwell, Detroit.—p. 296.

Minnesota Medicine, St. Paul

July, 1918, **1**, No. 7

60 Gastric Crises and Related Abdominal Pain. E. L. Tuohy, Duluth.—p. 241.
61 Fractures of Skull. R. Earl, St. Paul.—p. 247.
62 Lithiasis with Bilateral Renal Involvement. W. F. Braasch, Rochester.—p. 252.
63 Responsibilities of Medical Practitioner to State, Profession and Patient, as Related to Malpractice. A. F. Schmitt, Mankato.—p. 256.
64 Cesarean Section. H. T. McGuigan, Red Wing.—p. 262.

Missouri State Medical Association Journal, St. Louis

July, 1918, **15**, No. 7

65 Medical Aspects of War. R. E. Schlueter, St. Louis.—p. 243.
66 Responsibility of Medical Profession to Crippled Soldier. G. C. Robinson, St. Louis.—p. 250.

Modern Hospital, St. Louis

July, 1918, **11**, No. 1

67 Planning of Small Tuberculosis Sanatorium Buildings. J. D. Burt, New York.—p. 1.
68 Standardization of Hospitals for Insane. W. C. Sandy, Middletown, Conn.—p. 6.
69 Occupational Treatment in Nervous Disorders. J. Luther, Providence, R. I.—p. 11.
70 Hospital Housekeeping, Its Worries and Cares. M. A. Jamieson, Columbus, Ohio.—p. 15.
71 Self-Government for Resident Medical Staff. C. B. Bacon, New York.—p. 17.
72 Memorial Hall of Buffalo General Hospital. E. F. Stevens, Boston.—p. 20.
73 Little Journeys to Places and People Worth Knowing. M. J. Robinson, Chicago.—p. 23.
74 Hospitalism; Its Cause and Treatment. P. O. Clark, Wheeling, W. Va.—p. 53.
75 Standardization of Hospitals. C. A. Drew, Worcester, Mass.—p. 56.
76 Community Hospital as Viewed by Nurse. M. Harrison, Kerrville, Texas.—p. 58.
77 Visitors and Visiting in Hospitals. J. Geffen, Philadelphia.—p. 61.
78 Who Should Be Dispensary Patients? M. M. Davis, Jr., Boston, and A. R. Warner, Cleveland.—p. 64.

New Orleans Medical and Surgical Journal

July, 1918, **71**, No. 1

79 Thrift and War Savings Stamps and Liberty Bonds. C. Janvier, New Orleans.—p. 6.
80 Medical Reserve Corps. I. Dyer, New *Orleans.—p. 11.*
81 Medical Profession and Great War. H. Page, Fort Oglethorpe, Ga.—p. 14.
82 Medical Reserve Corps and Medical Military Activities. F. Simpson, Washington, D. C.—p. 19.
83 Bass-Watkins Agglutination Test for Typhoid. F. M. Johns, New Orleans.—p. 22.
84 Treatment of Eclampsia. H. E. Miller, New Orleans.—p. 28.
85 Importance of Early Diagnosis and Treatment of Middle Ear Diseases of Children. M. P. Boebinger, New Orleans.—p. 36.

New York Medical Journal

June 22, 1918, **107**, No. 25

86 Some Unusual Surgical Experiences. A. Vanderveer, Albany.—p. 1161.
87 Relation between Lupus Erythematosus and Tuberculosis. F. Wise, New York.—p. 1164.
88 Prognosis in Pulmonary Tuberculosis. M. Fishberg, New York.—p. 1167.
89 Diagnosis and Treatment of Anthrax. N. Schwartz, New York.—p. 1171.
90 Otogenous Temporal Abscess with Hemiplegia. O. Glogau, New York.—p. 1174.
91 Roentgen Ray as Diagnostic Aid in Backache. M. K. Fisher, Philadelphia.—p. 1176.
92 Plan for Prevention of Venereal Diseases in New York State. E. H. Marsh, New York.—p. 1178.
93 Occupational Mercury Poisoning. G. S. Bangert, East Orange, N. J.—p. 1179.
94 Treatment of Compound Fracture of Femur at Casualty Clearing Stations. H. M. W. Gray, Aberdeen, Scotland.—p. 1181.

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95 Device for Roentgen Ray Location of Bullets and other Foreign Bodies in Wounds. S. Tousey, New York.—p. 1.
96 *Unusual Hyperpyrexia in Pneumonia; Recovery. J. P. C. Griffith, Philadelphia.—p. 3.
97 Action of Radium on Cataract. I. Levin and M. Cohen, New York.—p. 4.
98 Case of Dyspituitarism. H. Climenko, New York.—p. 5.
99 Plaster of Paris Bandage Roller. W. H. Bennett, Atlantic City, N. J.—p. 6.
100 Mechanical Comminution of Food in Therapeusis of Acute Alimentary Disturbances of Infancy and Childhood. H. Lowenburg, Philadelphia.—p. 7.
101 Analytic View of Psychic Factor in Shock. G. M. Parker, New York.—p. 12. To be concluded.
102 Dispensary Abuse. I. S. Wile, New York.—p. 17.
103 Brief Biblical Evolution of Medicine. J. H. Marcus, Atlantic City, N. J.—p. 21.
104 Epidemiology of Trench Warfare. V. Bardou, France.—p. 24.

96. **Hyperpyrexia in Pneumonia.**—In a typical case of bronchopneumonia with increasing and finally rather extensive consolidation involving parts of both lungs in scattered areas, although the patient was evidently severely ill, the heart sounds throughout remained fairly good; the patient never appeared to be in any immediate danger, and a guardedly favorable prognosis was given at all times. The most interesting feature was the continued tendency to high fever, with a daily maximum of 104 to 107 F., and one occasion 108 F., with rapid drops to 100. The patient was 2½ years of age. The second case was at first an ordinary typical croupous pneumonia in a boy of 5¼ years. The temperature had been not unduly elevated, the mind entirely clear, the cardiac strength excellent. This favorable condition continued until the seventh day of the attack, when an unusual degree of drowsiness developed, and the temperature became higher. On the tenth day, instead of the convalescence which had been fully expected even earlier, the temperature began to rise, the pulse grew very weak, and the child appeared to be rapidly sinking. The fever had risen to 109 F., as recorded by two different thermometers. A warm mustard bath had been given, and the temperature had fallen to 106, yet with the pulse still rapid and no improvement in the general condition of the child, who was unconscious and evidently extremely ill. In twelve hours, however, the temperature had dropped nearly 12 F., and the general condition, although still very bad, was better. By the thirteenth day of the disease convalescence appeared established. There was no further return of fever.

Ohio State Medical Journal, Columbus

July, 1918, **14**, No. 7

105 Night Pay Clinic; Its Development at Lakeside Hospital. A. R. Warner, Cleveland.—p. 404.
106 Use of Nitrous Oxid in Production of Painless Childbirth. M. Salzer, Cincinnati.—p. 406.
107 Perforation of Abdominal Viscera. E. H. Chapin, Columbus.—p. 409.
108 Predisposing Cause of Cancer in Women. G. E. McCullough, Troy.—p. 411.
109 Certain Special Fractures. J. D. Smith, Akron.—p. 413.

Philippine Journal of Science, Manila

May, 1918, **13**, Sec. B, No. 3

110 Virulence of Certain Body Organs in Rinderpest. *W. H. Boynton*, Manila.—p. 127.
111 Use of Organ Extracts in Place of Virulent Blood in Immunization and Hyperimmunization Against Rinderpest. W. H. Boynton, Manila.—p. 151.
112 Comparative Study on Natural Hemolysins in Inactivated Human and Monkeys Serum. C. Monserrat.—p. 159.

South Carolina Medical Association Journal, Greenville

June, 1918, **14**, No. 6

113 Application of Military Sanitation in Small Towns and Rural Districts. F. L. Parker, Charleston.—p. 144.
114 Military Medicine and Surgery. G. A. Dillinger, Camp Hancock.—p. 147.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

April, 1918, **5**, No. 20

1 Surgical Pathology of Peripheral Nerves. S. M. Cone.—p. 524.
2 *Study of Series of Wounds Involving Brain and Its Enveloping Structures. H. Cushing.—p. 558.
3 Bone Growth and Bone Repair. I. A. Review. A. Keith.—p 685.
4 Two Cases of Strangulated Retroperitoneal Hernia into Pouches in Broad Ligament. C. H. Fagge.—p. 694.

2. See abstract in The Journal, April 6, 1918, p. 1038.

British Medical Journal, London

June 15, 1918, **1**, No. 2998

5 *Gunshot Wounds of Chest. J. F. Dobson.—p. 661.
6 War Scars and Their Pains. E. M. Corner.—p. 665.
7 *Emergency Treatment of Wounds. A. J. Hull.—p. 667.
8 Temporary Cecostomy in Resection of Distal Portion of Colon for Nonobstructive Conditions. G. Taylor.—p. 667.
9 Local Application of Liquid Glucose in Treatment of Certain Superficial Bacterial Infections. T. H. C. Benians.—p. 669.
10 *Intravenous Injection of Eusol in Chronic Arthritis. H. Fairclough.—p. 670.

5. **Gunshot Wounds of Chest.**—The recognition of penetrating wounds of the chest Dobson points out is not always easy, and the most careful examination of the chest should be made in wounds of the upper arm, neck, shoulder and lumbar regions. He cites cases to emphasize the danger of evacuating a case in which the chest has been primarily closed until such time as the possibility of infection has passed. The best preventive of sepsis is early and thorough operative treatment with complete closure of the chest. In some the infection is derived from the lung, and may not be prevented by primary operative treatment, however early and thorough. The results of drainage are undoubtedly bad. Many patients succumb to sepsis, despite a free and dependent opening. This is to be prevented by treating the infected pleura and lung as other infected wounds are treated, namely, by washing the whole of the infected area with an antiseptic fluid at regular intervals, the progressive sterilization of the wound previously described by the author combined with efficient drainage. The results of drainage and irrigation by this method are striking. The general condition of the patient improves rapidly. The amount of discharge is much lessened, and in many cases there is practically none. The lung expands quickly and undoubtedly much more rapidly than in cases treated by drainage alone.

7. **Emergency Treatment of Wounds.**—The ideal treatment for infected gunshot wounds, Hull says, is to excise them during the preinflammatory stage, that is, within twenty-four hours of the infliction. The exigencies of war will more often than not make this impossible. The question therefore arises whether it is possible to prolong the preinflammatory stage. The only treatment which a wound at present receives in war previous to being excised or otherwise dealt with at a casualty clearing station is the application of a first field dressing. In spite of the advances in surgery, particularly in the treatment of wounds, Hull states that the emergency treatment is no more efficacious than it was in the days of the Trojan wars. The dressings applied to wounds before the arrival at a casualty clearing station have no influence whatever on the infection in the depths of the wounds. Improved results of the treatment of wounds can only be achieved by some method of either excising the wound during the preinflammatory stage or by prolonging that stage, and research in the latter direction appears to be most desirable. The old first field dressing appears to be totally inadequate. It is suggested that, as soon as practicable after the infliction of a wound, it should be instilled with some nonirritating antiseptic, in order to inhibit the growth of micro-organisms. Within the first few hours, unless septic foreign matter remains in the depths of the wound, pathogenic organisms are found to be few in numbers and confined to the surface of the wound.

Several reagents which are nonirritating inhibitors of septic organisms are available. Flavine in 1:1,000 solution or dichloramin-T would appear to be suitable antiseptics for the purpose. Brilliant green is frequently used as an antiseptic stain. Eusol and Dakin solutions would be too evanescent and too transient in their action for this purpose, as, in fact, they are for any wound treatment during transport. If a 5 per cent. solution of salt be combined with the antiseptic reagent, the micro-organisms will not only be inhibited in the wound, but an outpouring stream of serum will be produced which will carry infection from the wound, and prevent the ingress of organisms. The technic of wound instillation is simple. The chosen solution is instilled by means of a fine glass nozzle attached to a Higginson's syringe, care being taken to inject fluid into the depths of the wound. This treatment is not beyond the scope of an advanced dressing station. There is also indication for the use of this method in casualty clearing stations. In times of pressure a patient may have to wait a day or more before an operation can be performed. The preliminary instillation of the wound with an inhibiting antiseptic solution may make the difference of the wound being operated on in the preinflammatory stage, or when suppuration has commenced. By beginning wound instillation within an hour or so a wound is bacteriologically as sterile as an excised wound, and but for the tissue necrosis which follows gunshot wounds the early instillation of a suitable antiseptic might replace wound excision.

10. **Injection of Eusol in Chronic Arthritis.**—The solution used by Fairclough contains 0.5 per cent. free hypochlorous acid, and was prepared according to the directions of James Graham, namely, 12.5 gm. boric acid, and 12.5 gm. chlorid of lime are shaken up with 1 liter water, allowed to stand for some hours, filtered, and 8.5 gm. of common salt added; dose, 100 c.cm. He reports good results.

Dublin Journal of Medical Science

June, 1918, **145**, No. 558

11 Rodent Ulcer. W. Beatty.—p. 329.
12 Syphilis and the State. T. P. C. Kirkpatrick.—p. 339.

Journal of Laryngology, Rhinology and Otology, London

June, 1918, **33**, No. 6

13 Paralysis of Left Vocal Cord. H. Tilley.—p. 161.
14 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 166. To be continued.

Journal of Tropical Medicine and Hygiene, London

June 15, 1918, **21**, No. 12

15 Classification of Mycetomas. A. J. Chalmers and R. G. Archibald.—p. 121.

Lancet, London

June 15, 1918, **1**, No. 4946

16 *Sterilization of Wounds by Physiologic Agency. A. E. Wright, A. Fleming and L. Colebrook.—p. 831.
17 *Method of Dealing with Divided Ureters. W. B. Bell.—p. 838.
18 *Warfare Injuries of Larynx. W. D. Harmer.—p. 839.
19 *Cecoplication. W. W. Cheyne and A. Edmunds.—p. 842.

16. **Sterilization of Wounds.**—Wright and his associates claim that (1) it has been erroneously inculcated that every wound should be sterilized before closure; and that, therefore, primary suture should be avoided and secondary suture undertaken only after a course of antiseptics. They state that there is now no question, with respect to primary suture, that the wound taken after early surgical cleansing and resection is as good as sterile; and, with regard to secondary suture, undertaken with a wound in good condition and a purely serophytic infection, that such operative procedure, provided it leaves behind no infected dead spaces, directly contributes to sterilization. (2) It has been taught that the authors should judge of the fitness of the wound for closure by necropyocultures and direct microscopic examination of the pus. According to the authors it would be infinitely more reasonable to base the judgments on the results of biopyoculture. (3) It has been taught that suture cannot be successful in a wound containing a hemolytic *Streptococcus pyogenes*. The authors found that leukocytes can, given proper conditions, successfully combat this, and of course all other streptococci; and that these conditions can be realized in connection with the suture of wounds. (4) It has been taught

that for the removal of sloughs from foul wounds chemical solvents are required. However, sloughs can be removed by tryptic ferment set free from disintegrated leukocytes, and the liberation of this ferment can be greatly accelerated by breaking down the leukocytes in the discharges with hypertonic saline solution. (5) Lastly, it has been taught in connection with antiseptics that sterilization is obtainable only by continuous or very frequently repeated application. According to Wright and his associates there is nothing to prevent any part of a wound surface which has been washed quite clear of albuminous matter being sterilized by a single application of antiseptics.

17. **Method of Dealing with Divided Ureters.**—When implantation into the bladder is impossible, or when that viscus is absent Bell procedes as follows: At the first operation laparotomy is performed through a central subumbilical incision. The anterior branch of the internal iliac artery is tied on either side to diminish the blood supply to the pelvic organs, and so to facilitate the subsequent procedures. Next, a loop of the lower ileum, about 18 inches in length, with its mesentery, is isolated, and an anastomosis is made to carry on the function of the intestinal tract from which the loop has been excised. The apex of the isolated piece of bowel is not superficially attached to the fundus of the bladder, and the two ends of the loop are brought out through stab wounds, in the iliac region on either side and fixed in position. The central incision in the parietes is then closed. The dressings over the open ends of the bowel should be changed frequently, as there is a good deal of discharge, especially from the distal end, for a few days. When the attachments at these orifices are quite firm swabs are taken from the interior of the bowel with precautions against superficial contamination. Subsequently the loop of the bowel is washed out twice daily with a 1:30 solution of Milton fluid. Within ten days the bowel is sterile or practically so. The irrigation is continued for a few days longer, at the end of which time, if all the cultures are negative, the next step is undertaken.

At this second operation a self-retaining catheter is first placed in the bladder, and, after the abdomen has been reopened, the apex of the loop of bowel is detached from the fundus of the bladder. The ureters in turn are divided at the pelvic brim and are implanted into the isolated loop in the manner described by Stiles. The whole pelvis is then cleared; the genitalia with the upper part of the vagina, the parametrial glands and connective tissue, together with a large diamond shaped piece of the base of the bladder—the largest area of which is situated over the front of the cervix—are removed. The aperture in the bladder is closed with two layers of continuous sutures. The apex of the isolated loop of the bowel in which the ureters have been implanted is now anastomosed with the fundus of the bladder. The self-retaining catheter should be utilized for a week to keep the bladder empty. The operation is completed by the closure of the abdominal wound and of the open ends of the isolated loop of intestine, unless it be judged advisable to keep one or both ends open for the purposes of lavage. In this case the openings are closed subsequently at a third operation. The main point emphasized by Bell is that a loop of bowel in the living human subject can quickly be rendered sterile and kept sterile.

18. **Warfare Injuries of Larynx.**—Investigations have been carried out by Harmer and others on 245 patients. It has been noted that wounds of the larynx are infinitely rarer than injuries to the jaws; that the entry wound may be situated in any part of the neck (jaw and chest rare) and is generally smaller than the exit injury; that the commonest place of entry is the anterior triangle of the neck, especially the region of the thyroid cartilage; that transverse wounds (61) are more common than oblique (24); that entry wounds in the middle line in front are very rare (8) and never occur posteriorly, doubtless because the spine is always involved with fatal results; that the track of the missile may be horizontal, from above downward or occasionally from below upward; that the lower jaw may be struck first; that injuries of the larynx between the level of the vocal cords and the cricoid are the most serious; that tracheal wounds are rare (12); that the pharynx or esophagus is often included; that extralaryngeal wounds are very common on account of the mobility of the air passages, the missile often passing obliquely by the side of the thyroid cartilage or transversely behind the larynx without penetrating into its cavity.

In many of the cases examined the classical symptoms were remarkable by their absence. Although missiles had undoubtedly perforated the air passages, the patients declared that very little trouble had been experienced. Cough, dyspnea, blood spitting, dysphagia, and, later, bruising, edema, or inflammation may never occur. In general, however, the voice is immediately lost. Cough supervenes for a time. Hemoptysis (twenty-five cases) is common and may be severe, statements being made by the patients that they had lost "at least 2 quarts of blood" after being wounded. Severe bleeding may be due to injury of the carotid arteries (3) or internal jugular vein (2). It may also originate from the mucosa of the air passages without injury to any large vessel. Hemorrhage may continue for a few minutes or for long periods, such as two to seven days. Recurrent and secondary hemorrhages are rare at the base. Dysphagia (twenty-nine cases) is common, but generally of a transient nature for a day or two, and is caused more often by general soreness of the tissues than by obstructive inflammation in the gullet. Even after severe wounds involving the food passages there may be no dysphagia. Thus, a bullet which passed through the pharynx behind the larynx is said to have caused no dyspnea, dysphagia, or hemoptysis. Dyspnea (28 cases, tracheotomy in 18) seems very variable, and is often absent even in severe wounds. It may, however, develop unexpectedly after apparently simple injuries and at almost any period.

In two thirds of the gunshot injuries of the larynx that survive for more than a week recovery is complete, and no ill effects are produced beyond alteration of the voice. A small proportion of the cases of abductor paralysis recover. In a small number of patients total paralysis supervenes. Although the majority of larynx wounds recover after a time, one third of the patients are less fortunate, and in battle many lives are undoubtedly lost owing to wounds of the neck and larynx. Even the survivors may be crippled by complications, such as paralysis of the brachial plexus, bronchitis, loss of voice, and injury to health. Harmer says that considering that the uniform of a soldier at the front includes a collar reaching to the jaw, it should be a simple matter to insert in it a band of steel which would have the same effect as a helmet.

19. **Cecoplication.**—In a patient with pain in the right iliac fossa occurring in attacks or as a dull ache, with tenderness at or near McBurney's spot, irregularity of the bowels, and vague digestive disturbances, the diagnosis of chronic appendicitis is usually made. Appendicectomy, in the large majority of cases, leads to relief of the symptoms and great improvement in the patient's general condition. There is, however, a residuum of cases in which this operation fails to relieve the patient, the pain continuing as before. Cheyne and Edmunds believe that the explanation of this in some of these cases may be, that the appendicitis was only part of a general colitis; in others, that some other organ, as, for example, the ovary or tube, kidney or ureter, was at fault. These symptoms are sometimes loosely diagnosed as due to adhesions. While adhesions may account for pain in this region if they obstruct the passage of the intestinal contents, this explanation will not meet the whole case. Many patients, for example, after a severe suppurating appendicitis, in whom it is certain adhesions are abundant, are perfectly confortable, while in other cases in which the symptoms have been attributed to adhesions laparotomy often proves that none are present. But even when all such sources of error are eliminated there is still a group of patients which present all the symptoms commonly ascribed to a chronic appendicitis, in spite of the fact that this organ has been removed. It is pretty generally recognized that in such cases there exists some affection of the cecum, which is usually found to be voluminous and abnormally mobile. This condition has been called by a variety of names, such as cecum mobile, typhlatony, typhlectasis and voluminous cecum. Many sur-

geons have come to the conclusion that this prolapse and mobility of the cecum are the cause of the train of symptoms mentioned above, and that the size of the lumen should be diminished by "cecoplication," that is, by sewing together the anterior and posterior bands.

When, therefore, a case of chronic appendicitis exhibits a long lax cecum it is a good plan to combine cecoplication with appendicectomy. This adds practically nothing to the risk of the operation, and the postoperative discomforts of the patient are, if anything, diminished, so that there need be no hesitation in performing it in any case. Cheyne and Edmunds commence the suture where the stump of the appendix is invaginated, using a fine catgut. The needle is passed through the adjacent edges of the anterior and posterior bands, which converge at this point, and these edges of the bands are then united by a continuous suture extending upward for 3 or 4 inches toward the hepatic flexure. If there is any tendency of the bowel wall to bulge over the end of the suture line, this can be counteracted by picking up the bowel wall, between the bands, in the last stitch. The suture is then reversed and carried downward toward its starting point, this time, however, picking up the edges of the bands which were originally farthest from each other, the suture is continued until the starting point is again reached. In this way the whole of the bowel wall between the bands is invaginated and held in place by union between the surfaces of the bands which have been sutured face to face.

Medical Journal of Australia, Sydney

May 25, 1918, **1**, No. 21

20 Syphilis. L. E. Ellis.—p. 427.
21 Results Obtained from Examination of Eight Thousand Mental Patients by Bordet-Wassermann Test. O. Latham.—p. 429.
22 Pathology in Wartime. A. H. Tebbutt.—p. 433.
23 Agglutination after Administration of Typhoid and Paratyphoid Vaccines. W. K. Inglis.—p. 434. To be continued.

June 1, 1918, **1**, No. 22

24 Id. W. K. Inglis.—p. 449.
25 Fifty Cases of Rectal Ether Anesthesia. H. W. Sweetnam.—p. 452.

Archives de Médecine et de Pharmacie Militaires, Paris

March, 1918, **79**, No. 3

26 *Transfusion of Citrated Blood. G. Giraud.—p. 369.
27 *Tourniquet Gangrene. Bertein.—p. 394.
28 *Traumatic Shock. A. Monéry and P. Lombard.—p. 401.
29 Pathogenesis of Gas Gangrene. A. and J. Chalier.—p. 415.
30 Causticity of Hypochlorite Solutions. W. Mestrezat.—p. 429.
31 General Paralysis as Invaliding from Service. A. Paris.—p. 434.
32 *Pignet's Index of Physical Fitness. Besson.—p. 438.
33 The Work of the Medical Department in the Cantonments. (*Vue d'ensemble sur le service de santé dans les dépôts des corps de troupe.*) L. Netter.—p. 455.

26. Hematologic Study of Transfusion of Citrated Blood.—Giraud examined the blood of both donor and receptor both before and after the transfusion, and compares his findings with those that have been reported by others in respect to hemoglobin, coagulability, hemolysis, agglutination and anaphylaxis. He has had no experience with anaphylaxis, but cites the case reported by Jeanbrau last year in which a wounded man who had been given antitetanus serum three weeks before had blood transfused from a man who had been given an injection of antitetanus serum that very morning. The transfusion was followed at once by white syncope on the part of the receptor, mydriasis and rigor, with death in a few seconds. The assumption of anaphylaxis from the antitetanus serum and the antitetanus serum in the blood of the donor seems the only explanation of this occurrence. On the whole, Giraud remarks, his research seems to have raised a number of questions without settling any.

27. First Aid Treatment of Hemorrhage.—Bertein insists that the tourniquet is far from being the only means to arrest hemorrhage. To begin with, he says, few with external hemorrhage from a large artery survive to reach the first aid station. Under other conditions he advocates applying a bandage around the limb with a roll of gauze, or any foreign body equivalent, over the artery itself. The bandage is drawn tight enough to ensure that this large roll of gauze interrupts the circulation in the artery under it, but this does not interfere with the circulation in the rest of the limb. If the limb is so crushed that most of it has been detached, it is better to amputate it at once and apply hemostasis to the stump. To tampon the stump effectually takes scarcely any more time than to apply the tourniquet.

28. Traumatic Shock.—Monéry and Lombard declare that the study of the blood pressure is the only means for appreciation of the degree, the gravity, of traumatic shock. The blood pressure cannot be estimated with the finger, but with the Pachon oscillometer the exact state of the circulation can be told with precision. There is a point below which it is impossible for the heart to recuperate, that is, below 4 for the minimal and 7 for the maximal pressure as shown by the oscillometer. Any operative intervention merely hastens death. With shock from hemorrhage, the limit is not so absolute as with traumatic shock. The latter is more frequent during offensives than during quiet periods, and the association of injury of bones and of a large trunk nerve seems to predispose most to traumatic shock. The arterial hypotension and hypotension of the eyeballs are the essential elements for its diagnosis. In treatment, they lay great stress on having the *shockés* assembled in the quietest available quarters, kept darkened, the beds the most comfortable possible, and the men undressed and isolated, with a personnel trained in care of traumatic shock. The darkness, quiet and silence are important aids, supplemented by heating the bed with a cradle heated by electricity or an alcohol lamp, the arterial pressure taken every hour with the oscillometer. Morphin is given systematically as this seems effectual in raising the arterial pressure in traumatic shock just as it prevents its fall during abdominal operations. Subcutaneous injections of saline, with epinephrin, complete the treatment, and the man sleeps. When the blood pressure has risen to 4 and 7 or 8, then the operation is to be considered, and they emphasize that experience is confirming the justness of Crile's views in regard to the necessity for local as well as general anesthesia. The region to be operated on must be thoroughly blocked with the local anesthetic, having the trunk nerve, the vessel sheaths and the periosteum actually swimming in the anesthetic. They give an illustration of the wooden sheath to protect the alcohol lamp and chimney for heating the cradle which they have found useful, as it protects against danger of fire while it enables the heat to be regulated and kept at a constant figure with the minimum of alcohol.

32. Pignet's Index of Physical Fitness for Service.—Besson remarks that this *coefficient de robusticité* must be regarded as only one element in deciding as to the candidate's fitness, but that it is proving a most valuable aid. The figures representing the weight and the chest measure (metric system) are added together and the sum is subtracted from the height in centimeters. For example, the candidate weighs 60 (kg.) and his chest measure is 90 (cm.). The sum of these figures —150—is subtracted from his height, which is 170 (cm.), leaving 20, which is the index in this case. This index is applicable only to the young. After the growth has been solidly attained, it does not represent to the same extent the physical fitness. The higher the index the less the fitness. Above 25 the question of fitness is dubious, and 35 or over should entail the rejection of the candidate unless he is exceptionally short, which calls for some modification of the formula. The index is useful also as a means of keeping oversight of the physical condition of young recruits in the service; any notable increase in the index should attract the medical officer's attention.

Bulletin de l'Académie de Médecine, Paris

May 28, 1918, **79**, No. 21

34 Sialophagia of Central Origin. G. Hayem.—p. 400.
35 *Leishman Cirrhosis of Liver. L. Nattan-Larrier.—p. 402.
36 *Traumatic Shock. Brechot and Claret.—p. 404.
37 *Acetonemic Syndrome in Children. A. Rémond and Poux.—p. 405.
38 *War Fractures. P. Reynier.—p. 409.

35. Leishman Cirrhosis of Liver.—Nattan-Larrier has seen cirrhosis of the liver develop with chronic kala-azar in India.

36. Traumatic Shock.—As an aid in prognosis, Brechot and Claret mention that of seven wounded men with intense shock, but with a variation of 3 or more between the maximal and minimal tension with the Pachon oscillometer, six of the men recovered and the other succumbed to other causes. In another corresponding group with a variation of only 2.5 or less, only one recovered, and this was the one with the highest figure. A difference of 2.5 or more seems thus to be a favorable sign while below 2.5 the patient seems to be doomed. The lowering of the arterial tension seems to be a constant phenomenon in shock; it is due to a vasomotor paralysis, and this is responsible also probably for the rise in pressure in the cerebrospinal fluid which they found constantly in seven cases of severe pure shock.

37. **Acetonemic Syndrome in Children.**—Rémond and Poux assert that the disturbances in children known as periodical vomiting with acetonemia are only one form of the acetonemia-acidosis syndrome. In other forms the acetonemia may be associated with symptoms simulating meningitis, typhoid or jaundice. The liver, small intestine and pancreas bore the brunt of the attack, and the reaction in other organs imparted great variety to the clinical picture in their twenty cases. The syndrome may prove fatal, but they found that the symptoms, no matter how menacing, promptly subsided under treatment of the defective peristalsis by subcutaneous injection of pancreatic juice (total extract of the fresh gland), with sodium bicarbonate to combat the acidosis. In one exceptionally grave case in a girl of 8 they injected a 1 per cent. solution by the vein. In the other cases they gave from 20 to 60 gm. in the twenty-four hours by the mouth and bowel (drip method). Their success justifies the conclusion that acetonemia from insufficiency of the pancreas is a much more important element in the pathology of children than has hitherto been realized. Search for acetone should be a routine procedure in the first hours of sickness of an intestinal or nervous form in children. This acetonemia syndrome displays a marked tendency to recurrence. It should be warded off by abstention from cooked fats and too much meat, while an alkaline drinking water should be systematically used. A course of treatment at Vichy seemed very effectual. The first sign of trouble is the arrest of peristalsis. No feces are passed along from the small into the large intestine. The stools consist exclusively of the mucous secretions of the colon. Within five or six hours, acetone and diacetic acid appear in the urine, and by the twenty-fourth or forty-eighth hour the breath smells of acetone. The acetone and diacetic acid content of the urine may increase from about 0.10 gm. the first day to 4 or 5 gm. per liter in forty-eight hours, and the urine grows scanty and may look greenish. Thirst is great, and vomiting may occur, but there was no vomiting in 50 per cent. of their cases. The temperature may drop; one child had a rectal temperature of only 35 C. In others there was high fever.

38. **Treatment of War Fractures.**—Reynier devotes seventeen pages to a profusely illustrated description of the various apparatus to correct functional impotence devised, he says, by the inventive genius of Miss Gassette, technical director of the Franco-American Committee, whose training as an artist facilitated the task. He pays high tribute to her skill in inventing and modifying apparatus for suspension, extension, etc., and describes the principles so that others can apply them. He speaks with deep gratitude of her work and the American generosity which financed the whole; saying, *"Au nom de tous nos blessés, merci."*

Bulletins de la Société Médicale des Hôpitaux, Paris

April 26, 1918, **42**, No. 14

39 Lethargic Encephalitis in England. A. Netter.—p. 384.
40 *Convergence of the Eyeballs after Shell Concussion. P. Descomps, J. Euzière and P. Merle.—p. 385.
41 *Syndrome of Jugular Foramen. Rimbaud and Vernet.—p. 389.
42 Rotating Table for Roentgen Work. Lorgnier.—p. 393.
43 The Oscillometer Curve of the Pulse. J. A. Barré.—p. 397.
44 *Fixation of Complement in Skin Diseases. Desaux and Roehrich. —p. 402.

40. **Convergence of Eyeballs After Shell Concussion.**—At one of the army *centres de neurologie* it was noticed that the eyeballs were found intensely converging after the rotation test, and from ten to ninety seconds elapsed after the close of the test before the eyes resumed their normal position. In the nine cases described here, in four this convergence of the eyeballs was the only sign of anything wrong in the oculomotor sphere, but in the other five cases there was paresis of some of the neuromuscular apparatus of the eyes. The writers of the report regard the convergence as the equivalent of paralysis, and theorize to explain its mechanism, saying that it is a mistake to think that all the symptoms elicited by the rotation tests are referable to the internal ear. All these men were *commotionés*, and some had traces of evident organic central lesions from the shell concussion. The probability is, they think, that this convergence sign is a manifestation of some minute focal lesion in the brain.

41. **Pneumogastric and Spinal Nerves Syndrome.**—As these nerves emerge together through the jugular foramen, an injury at this point is liable to damage them all, and the resulting complicated set of symptoms has been called the syndrome of the jugular foramen. A typical case is described and the numerous causes liable to injure this vulnerable region are enumerated. Hypertrophied glands are one of the most frequent causes of compression of the set of nerves at this point. It is easy to differentiate the syndrome by the characteristic paralysis of the superior constrictor of the pharynx, evident when the tongue is held down with the spatula. In phonation, the mucosa of the posterior wall of the pharynx is drawn toward the sound side like a curtain. This objective symptom should be sought whenever there is complaint that swallowing of solid food is difficult. The paralysis may be so complete that swallowing is so difficult that stenosis of the esophagus may be assumed. In the typical case described the young man bent and twisted his head toward the side affected, to help in swallowing. His disturbances had followed a shrapnel wound in this region but there did not seem to be any direct injury of these nerves. Compression from a hematoma seems more probable.

44. **Fixation of Complement in Certain Dermatoses.**—The Wassermann reaction was positive in some cases of various types of skin disease but analyses of the cases showed that the skin disease was connected with the ingestion of meat. It was also determined that the antibody giving the reaction was present much more abundantly in the stools than in the blood serum. The reaction was very faint with the serum while very pronounced with the extract of the stools. This confirmed the other findings which incriminated the ingestion of beef as the predominant etiologic phenomenon. Otherwise the blunder would have been made to ascribe to syphilis the positive fixation of complement.

Journal de Médecine de Bordeaux

May, 1918, **89**, No. 5

45 *Transfusion of Blood. J. Guyot.—p. 119.
46 Welfare Work for Children in Combating Depopulation of France. Chambrelent.—p. 124.
47 Sterilization with Hot Vapors of Formaldehyd. E. Rousseau. —p. 130.
48 Can Saliva be Used in Treatment of Wounds? Grevin.—p. 140.

45. **Transfusion of Blood.**—Guyot lauds the Jeanbrau-Hédon method of transfusion of citrated venous blood. Three inspirations transform the venous blood into oxygenated blood, and sodium citrate is not an aphysiologic substance as it is found in breast milk. Only the exact amount of blood required need be drawn from the donor. In the emergency cases requiring immediate transfusion there is no time to apply the Wassermann test and test for hemolysis to the donor, but in Jeanbrau's experience no mishaps have resulted except that in one case malaria was transmitted to the wounded man. Jeanbrau does not like to use for donor a man who has recently been injected with antitetanus serum, fearing to induce phenomena of anaphylaxis in the receptor; he had a rapidly fatal case of this kind last year. R. Monod's recent research has confirmed that transfusion of blood actively stimulates the blood-producing function. He cites David and Curtiss' experience with dogs almost completely drained of their blood. One lot were given saline infusions, the other blood transfusion. The immediate effects were identical in all, but by the end of the eighteenth hour 70 per cent. of the saline dogs had died, and only 6 per cent. of those given the transfusion of blood.

Journal de Radiologie et d'Electrologie, Paris

January-February, 1918, **3**, No. 1

49 *M Unit in Roentgen Work. H. Guilleminot.—p. 1.
50 Dissociation in Radial Paralysis. P. Charpy.—p. 9.
51 *Sign of Penetrating Wound of Heart. Costantini, Vigot and Gosselin.—p. 12.
52 *Electric Treatment of Tuberculous Ulcer. Bonnefoy.—p. 14.
53 *Transactions of the Réunions des radiologistes.—p. 18.

49. **Dosage in Roentgen Work.**—Guilleminot describes a new unit of intensity, M, which represents certain factors disregarded in the present units in use. He also gives a table of calculations for ready reference showing the effectual dose under different conditions.

51. **Immobility of Heart Shadow as Sign of Penetrating Wound.**—When the outline of the shadow of the heart persists immovable after a wound of the chest, it can be confidently assumed that the heart itself has been directly wounded. In two of the three cases described the immobility was absolute; it seemed as if the heart had stopped beating. In the other case there was slight undulation at one point, but the immobility of the rest of the heart gave the indication for the operation. It revealed a scrap of shell in the heart wall in each case.

52. **Electric Treatment of Tuberculous Ulcer.**—The large ulceration on the neck of the young woman had begun during her first pregnancy. It extended from the front of the neck to back of the ear, and proved resistant to all treatment, including heliotherapy. As a last resort it was submitted to daily application of the high frequency current, a total of 191 sittings in the course of about eight months, with final complete healing and no disfigurement except what could be covered with a collar.

53. **Work of the Army Radiologists.**—The government has arranged for monthly meetings of the radiologists in each army, in each military region, and the *Journal de Radiologie* is to publish the transactions. Thirty pages are devoted to this department in this issue, many roentgenologists relating their experiences, their innovations and their modifications of established instruments and methods. Twenty-three different communications are reproduced or summarized.

Lyon Médical

May, 1918, **127**, No. 5

54 *War Bread. R. Lépine.—p. 193.
55 *Prophylaxis of Tuberculosis. Mouisset.—p. 200.
56 *Chronic Spondylitis with Tendency to Ankylosis. Péhu and Daguet.—p. 206.
57 Dosage in Radium Treatment. T. Nogier.—p. 217.

54. **War Bread.**—Lépine has been making a special study of the gluten content and other features of war bread, and he asserts that it is impossible to make good bread with more than 20 or 25 per cent. of flours other than wheat flour. It is the gluten in wheat flour that makes the dough rise, and other flours do not yield gluten. Whatever flours are used, the proportion of the bran should be reduced to the minimum, but some means should be found for extracting from the bran the substances capable of being assimilated, and these substances should be added to the bread. The bran renders the dough more acid, possibly by its diastases or microbes, and this extra acidity checks the activity of the yeast cells, besides detracting from the palatability of the bread. This is the reason why Lapicque and Legendre advise the use of lime water instead of ordinary water. With this, light bread can be made even with flour bolted at 85. Their theory has been combated by some, but experience seems to be confirming the advantage of using lime water, although the practice is still open to discussion. The extra acidity when there is large admixture of bran alters the gluten even when the acidity is neutralized with the lime water. In conclusion Lépine urges practical study on a large scale of Pointe's method of making bread directly from the grain. The wheat is macerated for twelve or fifteen hours in tepid water, and is then crushed into a paste which is passed through a wire sieve to exclude the bran. The paste is then ready to make the bread dough.

55. **Prophylaxis of Tuberculosis.**—Among the practical suggestions offered by Mouisset is that closer cooperation between the various public health agencies would materially improve the outlook. Energy is wasted in overlapping, and many fields are left neglected. He urges that anemic older girls and pregnant women should be regarded from the standpoint of official prophylaxis of tuberculosis. Anemic girls and frail children should be sent to the country; children with bone and joint tuberculosis should be given a chance for repose in country air. These alone may cure without the seashore, the mountains or other therapeutic elements. Specific institutions founded by gifts or legacies in rural districts or in towns often fail in their purpose because it is not realized that old people are not contented unless they are near their friends, while country surroundings are indispensable for the young with tuberculous lesions.

56. **Chronic Spondylosis with Ankylosis.**—Péhu and Daguet have encountered within a year ten cases of this kind in soldiers, and they are convinced that many cases reported by others as persisting lumbago, rheumatism, or sciatica, in reality are various phases of spondylosis with tendency to ankylosis. In their ten cases the men were about 40 years old, free from clinical signs of tuberculosis and gonorrhea. The first symptom is pain, at first in the lumbar sacral region. The pains keep up for a time, usually several months, and then subside for a time to reappear later and gradually extend the length of the spine. The rachialgia declines as ankylosis becomes installed. Roentgen examination shows a constant ligamentitis; the ligament becomes infiltrated with calcium salts. The chronic spondylosis seems to start always in the upper lumbar region or lumbodorsal. The lime deposits in the lateral ligaments cast a shadow resembling a hook or beak, but the vertebrae themselves show no essential modifications.

Paris Médical

June 1, 1918, 8, No. 22

58 *Shock in the Wounded. F. Masmonteil.—p. 419.
59 *Plastic Operations on Urethra. F. Legueu.—p. 423.
60 *Discontinuous General Anesthesia. H. Chaput.—p. 427.
61 *Vocational Reeducation of the Wounded. G. Anceau.—p. 431.
62 Cancer of the Breast. Potherat.—p. 436.
63 Prostheses after Disarticulation of the Shoulder. A. Tréves.—p. 441; Ditto for Paralysis of External Popliteal. L. Lamy.—p. 443.

58. **Shock in the Wounded.**—Masmonteil's general review of this subject confirms that the pathogenesis of shock varies in different cases, and treatment can be only symptomatic, practically empiric. Until recently it was taken as a matter of course that the operation must be deferred until the patient has recovered from shock. But this doctrine has been much battered of late, and several varieties of shock are now disregarded. In shock from hemorrhage, the vessels must be ligated. In shock from toxemia or septicemia, the focus for the intoxication must be suppressed without delay by amputation of a crushed limb or excision of muscles; if the condition is too grave for this, the wound can be sprayed or injected with Mencière's fluid or a formaldehyd solution. In nervous shock, usually with multiple wounds and concussion, intervention is not needed so much at once. If an operation is done in shock, it must be as rapid as possible (not more than three or four minutes for amputation of the thigh). The intoxication from the anesthesia must be reduced to the practicable minimum; at the same time it must be remembered that the anesthesia must be complete, as pain aggravates the state of shock. Early intervention is thus very promising, and the results are more brilliant, he says, the shorter the interval since the wound.

59. **Rebuilding the Urethra.**—Legueu has now a record of three cases in which he made a permeable passage after a war wound of the urethra. The success was complete in two cases and fair in the others. He obtained the mucosa for the purpose from female patients requiring colpoperineorrhaphy. The strip of mucosa was wound around a bougie, the raw surface outside, and was held in place with fine silk, the needles being those used for suturing blood vessels. It was introduced into a tunnel bored for it in the subcutaneous cellular tissue. The mucosa tube is introduced into the cannula after withdrawal of the trocar with which the tunnel was made. If the diameter of the cannula is too small, the

latter is withdrawn and the bougie in the mucosa tube is pushed into the tunnel. The dilatation of the new urethra is commenced the seventh or eighth day. No retention catheter should be used as this, being a foreign body, is irritating.

60. **Interrupted General Anesthesia.**—See Paris Letter.

61. **The Rehabilitation Centers.**—Each center for rehabilitation of maimed and of disabled soldiers consists of the service for making and fitting artificial limbs, etc., the service for physiotherapy, and the service for vocational training. Anceau describes the workings of the whole system. The men are not sent to the rehabilitation centers until entirely healed of their wound. Workers in plaster, iron, wood, cork and leather all do their part in the manufacture of the prostheses. Eight illustrations show the application to numerous types of artificial feet, legs and arms of the main mechanical principles involved in each form of deformity.

Presse Médicale, Paris

May 16, 1918, **26**, No. 28

64 *Sequels of Skull Wounds. A. Pitres and L. Marchand.—p. 253.
65 Continuous Extension and the Cast. H. Mayet.—p. 255.
66 *Gonorrhea in Women. P. Chevallier.—p. 256.

June 6, 1918, **26**, No. 31

67 *War Dyspepsias. G. Mouriquand and L. Bouchut.—p. 281.
68 Absorption of Air by Serous Membranes. P. E. Weil and Loiseleur.—p. 283.
69 Bacteriologic Diagnosis of Tuberculosis. F. Dumarest.—p. 283.

64. **Subjective Sequels of Skull and Brain Wounds.**—Pitres has examined 470 men who had apparently recovered from their skull wounds, but all had had at some time or still have headache, vertigo, physical and psychic depression and inability to stand noise, a true *syndrome commotionel.* Some of the men presented this syndrome up to twenty-two or thirty months after their injury, but this long duration is rare. As a rule these subjective symptoms disappear almost entirely by the end of a year, but even then the men are extremely sensitive to noises and to any work that requires stooping over. Marie has warned that such men should never be utilized as aviators or drivers of automobiles. Repose is the main thing in treatment, rest of body and mind. Daily tepid douches and phosphated or arsenical medication seemed to benefit in his experience. Many men apparently cured and resuming active service have had to be sent back from the front, as they were unable to stand the noise of the big guns.

66. **Gonorrhea in Women.**—Chevallier gives minute directions for treatment of acute, prechronic and chronic cases in which the cooperation of the patient cannot be relied on. Tincture of iodin and silver nitrate solutions are the physician's weapons, while the patient is given potassium permanganate and a nightly ovule of ichthyol, to use herself.

67. **War Dyspepsias.**—In 200 cases of dyspepsia among the soldiers, 110 were of the type with flatulence while in the others pain or vomiting predominated in the clinical picture. All were young and most of them had been previously robust. The great majority were from rural districts, and the change from their former tranquil life, plus homesickness, had evidently been important factors in their digestive disturbances. There were few city men in these war dyspepsia cases. Emotional factors, defective teeth, and debility from wounds or gastro-enteritis likewise cooperate, but the nervous element is the predominant note. The roentgen findings are normal as also the chemistry of the stomach. These details should be plainly stated on a card which should accompany the man, giving the diagnosis and the decision as to the true nature of the disturbances, which are practically hysteria of the stomach. The infirmary and hospital doctors would thus know how to manage the case when the man returns. The medical officers, once sure of the diagnosis, can aid the men in recovering their nervous and mental poise and soon make of them vigorous and excellent soldiers, instead of their dragging from hospital to hospital with their interminable complaints of dyspepsia. If it is allowed to last too long it becomes inveterate, and the men are absolutely unfit for service except possibly limited service. When too much debilitated for this, dismissal from the army may be the only means to cure them of their gastric "sinistrosis."

Progrês Médical, Paris

May 18, 1918, **33**, No. 20

70 *Choleriform Gastro-Enteritis. C. Lesieur and P. Jacquet.—p. 173.
71 *Frequency of Vincent's Angina. J. Chalier.—p. 174.
72 *Face Mask in Prophylaxis. A. Bernard.—p. 175.
73 A Doctor Captain. P. Voivenel.—p. 176.

70. **Choleriform Gastro-Enteritis Simulating Poisoning.**—In the case described the man of 43 was brought to the hospital in an algid condition, cold, with cyanosis of the extremities, the radial pulse imperceptible, intense pains in the stomach region and cramps. These symptoms developed suddenly in the night after a farewell dinner. They were ushered in with bloody vomit and profuse serous diarrhea. He improved immediately after intravenous infusion of saline, but died in collapse eleven hours after the first symptoms. The urine had been examined two months before and only 1.5 gm. urea found per day and liter. This with the known abuse of alcohol and the necropsy findings explained the case as the result of extreme fatty degeneration of the liver. The precarious balance had been upset by the excess at table superposed on a subacute proteus infection of the bowel. In a second similar case, the man died in a house of prostitution and the large amount of alcohol found in the stomach was probably responsible for the fatal upset.

71. **Prevalence of Vincent's Angina.**—Chalier warns that ulceromembranous sore throat is growing more common among the troops at the front. In the last twenty-two months he has encountered it in 26 per cent. of the forty-six cases of infectious sore throat necessitating hospital treatment, among the 2,500 men that have passed through his service. He insists on relative isolation of the men whenever Vincent's angina is suspected. When treatment can be begun early, the cure is usually complete in from eight to twelve days. He has found particularly useful extensive washing out of the throat, using for the purpose 2 quarts of boiled water to which a little hydrogen peroxid has been added, repeating the procedure three times a day. After these lavages he applies methylene blue copiously, in powdered form, filling the ulcer craters with it.

72. **Gauze Mask in Prophylaxis.**—Bernard comments that the use of netting over the beds, glass cubicles, etc., fails to do away with the vulnerable point of the nasopharyngeal secretions of the attending personnel. With this, infection may be spread from bed to bed and elsewhere. He cites Weaver's article in THE JOURNAL, Jan. 12, 1918, relating experiences with face masks, as a great advance. It promises to protect the attending personnel against becoming carriers or contracting the diseases they are tending, but many observations will have to be made before the exact value of the gauze mask in the prophylaxis of contagious diseases can be definitely determined.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 25, 1918, **48**, No. 21

74 Semicentennial of Obstetric-Gynecologic Clinic at Basel. A. Labhardt.—p. 673.
75 *Biology of Pregnancy Toxicoses. P. Hüssy.—p. 691.
76 *Uterine Cancer at Basel F. Egli.—p. 699.
77 *Pregnancy Anemia. M. Weidenmann.—p. 702.
78 *Torsion of Tubal Fibroma. Herde.—p. 706.

75. **Pregnancy Toxicoses.**—Hüssy has been making a comparative study of the serum of normal women, pregnant and nonpregnant, and of women with severe pregnancy toxicoses. He tested them in particular on the surviving rabbit ear, as he shows in an illustration. A glass tube is introduced into the artery and another into the vein of the ear and the serum in question is allowed to flow through. The number of drops per minute issuing from the vein is recorded on a drum—an index of the vasoconstricting or vasodilating action of the serum. The influence of various drugs was also studied. The absolute number of the drops was not regarded, as this varied with the different specimens of ears. The important point was the difference between the drops yielded by the normal serum, the pregnant serum and the toxicosis serum. In the twenty tests made comparing the serum from normal pregnant and nonpregnant women, the number of drops was always more numerous with the pregnant than with the non-

pregnant serum. This Krawkow rabbit ear technic thus can be utilized as a rather complicated biologic test for pregnancy. The serum from a pregnant woman with eclampsia displayed a very marked vasoconstricting action; the number of drops fell to 5 in comparison to the 25 drops with pregnancy serum and the 13 drops with nonpregnant serum in a given period. After the eclampsia had subsided, the number of drops was found normal again. Even smaller numbers of drops were obtained in pregnancy toxic kidney disease or dermatoses, confirming the presence in the blood of some substance with an intense vasoconstricting action. With the uncontrollable vomiting of pregnancy, a similar action was evident but it was much less pronounced than with any of the other pregnancy toxicoses. This suggests that the etiology of pregnancy hyperemesis is different from that with eclampsia and other pregnancy toxicoses. Tests on the surviving intestine confirmed the abnormal vasconstricting action of the blood serum in pregnancy toxicoses. Normal pregnancy serum, on the other hand, has the opposite action, dilating the vessels, as is evident from the nearly double number of drops per minute. The toxic substances inducing the vasoconstriction seem to stand in close relation to the amins. They are probably connected with the pituitary body: they do not seem to have anything to do with the suprarenals and thyroid.

76. **Uterine Cancer.**—Egli gives the present status of 80 women who had had the uterus removed on account of cancer during the ten years before 1911. The operability of the 325 cases of uterine cancer was 50.7 per cent. Of the group of 80, 33.75 per cent. had no recurrence for over five years. Of this group of 27 surviving for over five years, the operation in the 14 cervix cases had been exclusively vaginal, as also in 12 of the 13 corpus cancers. The vaginal and abdominal technics were applied in about an equal number of cases, but only one of the abdominally operated on is known to be living over five years afterward.

77. **Severe Anemia in Pregnant Women.**—Weidenmann does not declare that the pregnancy was the cause of the pernicious anemia in the two cases described, but this is suggested by the marked improvement which followed delivery in one case, and by the return of the anemia at each pregnancy in the other case.

78. **Tubal Fibroma.**—Herde has found records of only twenty cases of tubal fibroma and none in which the growth was on the abdominal end of the tube as in the case he reports. It had not induced any symptoms until torsion of the pedicle caused sudden severe illness and an operation under the diagnosis of appendicitis.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 5, 1918, **39**, No. 36

79 Variola in Pregnant Women. C. Fino.—p. 355.

May 9, 1918, **39**, No. 37

80 *Tuberculosis of the Genital Organs. F. R. Varaldo.—p. 365.
81 *Brittle Bones with Blue Sclerotics. A. Marconi.—p. 367.

May 12, 1918, **39**, No. 38

82 *Skull Wounds. E. Santoro.—p. 373.

80. **Genital Tuberculosis.**—In the case described by Varaldo, the diagnosis of gonorrheal salpingo-ovaritis seemed plausible at first, but the insidious onset, the youth of the patient, and the absence of any history of abortions or gonorrhea suggested the possibility of tuberculosis. With tuberculous salpingitis there are none of the attacks of violent pain common with ordinary inflammatory processes in the adnexa. Granulations or other signs of tuberculosis on the uterine cervix or scrapings from the uterus may suggest the true nature of the trouble. Tuberculosis should always be suspected when a virgin develops bilateral ovary and tube disease, especially when menstruation has been scanty and the genital organs seem to be backward in their development. In the case described there had been vague symptoms from the internal genitals for over five years, sacrolumbar pains and pains in the lower bowel, leukorrhea and occasionally frequent and somewhat painful micturition, but limpid urine and never high fever. The adnexa were enlarged and adherent to uterus, intestines and pelvic walls. On one side the mass felt the size of a mandarin orange. The uterine cervix seemed to be normal except for a small erosion and the greenish yellowish dense secretion. Panhysterectomy by subtotal amputation of the uterus was followed by smooth recovery.

81. **Blue Sclerotics.**—The young soldier had brittle bones, with numerous fractures, and visible hypotrophy of the circulatory apparatus besides the blue sclerotics. Marconi theorizes that some arrest in the development of the mesenchyma from inherited or acquired causes would explain the three features of such cases, the defective development of the sclerotics, bones and circulatory apparatus.

82. **Skull Wounds.**—Santoro gives the details in turn of his forty-seven cases of skull wounds. In one case there was hemiplegia on the same side as the wound evidently from injury of the brain on its impact against the opposite side of the skull at the time of the fracture. The focal symptoms usually became accentuated after the operation, but then they subsided as recovery progressed. When they persisted and became progressively accentuated, some infectious complications were always found.

Pediatria, Naples

June, 1918, **26**, No. 6

83 *Associated Infections. S. Maggiore.—p. 321.
84 *Nitrogen Metabolism in Idiots. G. Caronia.—p. 336.

83. **Associated Infections.**—Maggiore describes a number of cases in young children of typhoid plus malaria or Malta fever, of measles plus dysentery, and of leishmaniasis plus Malta fever. The differential diagnosis is practically impossible without laboratory aid, as the associated infections modify each other to a remarkable extent. The general influence also is to aggravate each. Specific serotherapy and vaccine therapy proved remarkably effectual in some, especially in the typhoid plus Malta fever group, and, with quinin, in the typhoid-malaria group. No benefit from vaccine treatment was evident in the measles-dysentery cases, the three children dying. The one infant also died that presented mixed internal leishmaniasis and Malta fever.

84. **Nitrogen Metabolism in Idiots.**—Caronia's tabulated findings of the nitrogen metabolism in mongoloid idiocy and in myxo-idiocy confirm the different nature of these two forms of idiocy. The mongolian idiocy was distinguished by notable retention of nitrogen and increased elimination of amino-acids. Under the influence of thyroid treatment, the metabolism seemed to be whipped up to an actual process of disintegration, the phenomena resembling those in exophthalmic goiter. With myxo-idiocy, on the other hand, the metabolism is decidedly irregular, but under the thyroid treatment it became regular, and the metabolism findings approximated those in normal subjects. Nô tendency to hyperthyroidism was observed. This behavior of myxo-idiocy under thyroid treatment confirms the great influence exerted by the thyroid in myxedematous idiocy, and justifies anew systematic thyroid treatment.

Policlinico, Rome

June 2, 1918, **25**, No. 22

85 *Intravascular Tamponing of Artery. A. Caucci.—p. 509.
86 *Initial Syphilitic Lesions in Nasal Fossas. G. Basile.—p. 510.
87 *Universal Pincers. A. L. Soresi.—p. 514.

85. **Intravascular Tamponing of Artery.**—In two cases Caucci succeeded in arresting hemorrhage from an artery by plugging the lumen of the artery with a wad of gauze introduced from below. In the first case the common carotid was thus plugged after a gunshot wound of the internal maxillary. The external carotid had suppurated after it had been ligated and the common carotid had been ligated and suppurated also. The recurring hemorrhage was arrested with the finger, and then the plug of gauze was introduced directly into the carotid artery just above the sternoclavicular articulation. The gauze plug was held in place with a tight dressing and there was no further hemorrhage. The gauze was removed the twelfth day; the whole procedure had been aseptic. In a second case the internal carotid was ligated and, through an opening made just above the ligature, the gauze plug was introduced into the artery and pushed up toward the bleeding point. The artery was then ligated with the plug inside. Hemorrhage was definitely arrested. Twenty

days later the plug was removed; it was found putrid, probably from microbian invasion from a suppurating otitis media, although the wound had healed by primary intention, and there were no further disturbances. The fact that no more blood escaped from the ear as the plug was pushed up in the artery confirms that the hemostasis was due to the plug as, before this, compression of the artery did not suffice to arrest the hemorrhage from the ear, and tamponing the ear had no effect as the blood poured through the eustachian tube into the mouth. Tests on the cadaver showed that a plug of gauze introduced into the internal carotid in this way can be pushed up to and reach beyond the angle of the carotid canal. The principle seems thus established that it is possible to plug an artery from sound tissue below the bleeding point by pushing a long and slender roll of gauze up in the lumen of the vessel until it plugs and closes the opening in the artery wall. The method is adapted for arteries when the bleeding point is inaccessible, or when from changes in the artery wall the thrombus forming after ligation softens and drops off, thus entailing repeated secondary hemorrhage. Experiments since on dogs have confirmed the feasibility of the method and its reliability in appropriate cases.

86. **Primary Syphilitic Lesion in Nose.**—Basile reports three cases in which the primary lesion developed in the nose. In one man of 30, it assumed a diphtheroid-erosive form, with intense headache and profuse nasal secretion, all on the left side, with fever, and nocturnal exacerbations. No benefit was derived from two injections of diphtheria antitoxin, and the appearance of skin lesions elsewhere three weeks later cleared up the diagnosis of syphilis. In another case a girl of 12 developed a neoplasm in the nose. It was excised and found to be of syphilitic nature, with spirochetes. The child had the charge of an infant who proved to have inherited syphilis. The initial syphilitic lesion may assume a form suggesting impetigo, and this is difficult to recognize; it is extremely rare. The presence of a few enlarged glands hard, elastic and indolent, in the submaxillary region is suspicious. There is usually a tendency to anemia and headache on the side affected. The syphiloma is generally found on the outer wall of the nasal fossa but it may be on the septum. It subsides as the disease approaches the secondary phase, and there is none of the destructive action of a tertiary nasal lesion. The rapid development excludes cancer. The Wassermann reaction is seldom positive with these initial lesions.

87. **Universal Spring Pincers.**—The pressure of the thumb on the top of the slender metal tube, about 20 cm. long, releases three hooks which emerge from the other end, spreading and seizing any object whatever its shape. This *pinza pigliatutto* is proving very useful for seizing foreign bodies in wounds, in the air passages, etc., or picking up articles of any kind.

Riforma Medica, Naples

May 18, 1918, **34**, No. 20

88 *Cobra Venom Reaction in Cancer. C. B. Farmachidis.—p. 382.
89 Bronchopulmonary Spirochetosis. S. Fichera.—p. 384.
90 Crystals in Urine from Magnesium Metabolism. A. Cavazzani.—p. 387.
91 *Complications of Wounds of the Brain. E. Aievoli.—p. 390.

88. **Cobra Venom Reaction in Diagnosis of Cancer.**—Farmachidis' new series of tests sustain his previous assertions that the activation by cobra venom of the hemolytic action of the serum in the deviation of complement test occurs only with serum from persons with malignant disease. With rabbit red corpuscles, a positive reaction was pronounced in his total of fifty-three out of sixty-four persons with carcinoma. In all the other eleven cases, the reaction occurred, but not until after the twentieth hour (between the twentieth and the thirty-fifth hours), and consequently he lists these responses as negative. In sixty-two persons with tumors of benign character, fibromas, cystomas, etc., there was no trace of a positive reaction. He now uses 0.10 c.c. of a 1 per twenty thousand solution of the cobra venom, that is, one part of a 1 per five thousand solution of cobra venom in three parts physiologic saline. In his previous research he used always the 1 per five thousand solution of the cobra venom, but found that this alone sometimes hemolyzed guinea-pig red corpuscles, and now he uses one fourth of this strength. His conclusions are all in favor of the value of the cobra venom reaction as an aid in the diagnosis of malignant disease.

91. **Complications of Brain Wounds.**—Aievoli reviews some recent literature on the subject of brain wounds thus analyzing a total of 2,357 in British and 6,664 in French hospitals. Aside from the transient cerebral manifestations at first, there seems to be no question that a man who has been trephined for a wound of the skull and brain is often left with reduced mental or professional capacity, and there may be symptoms ranging from headache to vertigo, from asthenia to amnesia, with diminished power of attention and association of ideas, and exaggerated emotivity. Hyperemia of the papilla, hypertension, abnormal albumin content of the cerebrospinal fluid, and labyrinth disturbances are also common. At the same time, Marie has not known of a single instance of general paralysis or dementia developing as a consequence of a brain wound, and Tuffier has only encountered 0.64 per cent. cases of serious mental impairment. The outlook is more favorable with hemiplegia from injury of the prefrontal lobe and the rolandic region and vicinity, gradual improvement being not infrequent.

Anales de la Facultad de Medicina, Montevideo

March-April, 1918, **1**, No. 2

92 *Tabes. E. Odriozola.—p. 119.
93 *Single Kidney R. P. Varela.—p. 125.
94 *Peruvian Verruca. J. Arce.—p. 130.
95 *Urease Test for Urea in Urine. M. A. Velasquez.—p. 162.
96 *Hysteria versus Epilepsy. H. Valdizan.—p. 169.
97 Psychanalysis. H. F. Delgado.—p. 186.

92. **Spontaneous Fractures in Tabes.**—Odriozola's patient is a tabetic of 36 with spontaneous fractures of the left ilium. The first insidious symptoms of the tabes dated from about two years before.

93. **Hydronephrosis in Single Kidney.**—The girl of 16 had right hydronephrosis with hematuria and fever, and the bladder was scattered with tubercles. The right ureter was easily catheterized but the mouth of the left ureter could not be located. The catheter was left in the right ureter for ten hours, and the urine accumulating in the bladder was assumed to come from the left ureter. The right kidney was consequently removed and proved to be almost completely destroyed. When the anuria had persisted for twenty-four hours and no opening into the left ureter could be detected, the left side was opened and the complete absence of any kidney was determined. After the nephrectomy the condition was excellent for four days. Then there were some false desires to urinate, coinciding with the hot enemas given. The pulse kept good and there were no disturbances till the twelfth day, when fatal coma developed.

94. **Peruvian Verruca.**—Arce's presentation of the present status of our knowledge of Peruvian verruca is accompanied by photographs of a number of typical cases. There was associated malaria in nearly every case and other complications are common. Without complications spontaneous retrogression is the rule.

95. **Urease Test for Urea.**—Velasquez is professor of medical chemistry at the University of Lima, and he confirms the recent statements by Marshall, Van Slyke and others in regard to the reliability and accuracy of the urease test for determination of urea in the blood serum and urine.

96. **Neuroses in Early History of Peru.**—Valdizan is compiling the history of hysteria and epilepsy in the seventeenth and later centuries in Peru as recorded in the writings of the priests and other historians of those days. Some of the cases are described as cures wrought by miracles, but most of them were brought into prominence by self-confessed crimes, an actual epidemic of confessions of preposterous crimes by priests and others who were duly penalized or executed in consequence. The history of these *locos de la colonia* forms an interesting page of the ledger of hysteria and epilepsy.

Prensa Medica Argentina, Buenos Aires

May 10, 1918, 4, No. 34

98 *Gastric and Duodenal Ulcer with Tardy Inherited Syphilis. M. R. Castex and A. Mathis.—p. 495.
99 *Prophylaxis of Malaria. A. Barbieri.—p. 507. G. A. Alfaro.—p. 508.

98. **Tardy Inherited Syphilis in Relation to Gastric and Duodenal Ulcer.**—Castex and Mathis do not hesitate to affirm on the basis of their personal observation that, before the age of 30, tardy inherited syphilis can be incriminated for 90 per cent. of gastric and duodenal ulcers, and acquired syphilis for the remaining 10 per cent. After the age of 30, the proportions are reversed, 90 per cent. being due to acquired syphilis and 10 to the inherited taint. A year ago they declared that syphilis was a frequent cause of gastric and duodenal ulcer, but later experience has convinced them that it is the exclusive cause. The gastroduodenal disturbances begin between the ages of 14 and 38, and males furnish the largest contingent. Severe constipation often accompanies them; possibly the same cause is responsible for both. In one of the fifteen cases reported in detail, perforation occurred soon after the first symptoms had been noted; in the others the disturbances had kept up for from one to nine years in the ten cases given operative treatment, and in from three to twelve years in the cases without anatomic corroboration. In every one of the ten operative cases, the intervention had failed to relieve, but seven were completely cured with mercurial treatment, and the others materially improved. The operation disclosed in each case an adhesive membranous plastic peritonitis, circumscribed or regional. The disturbances during the first three years displayed a tendency to periodicity. This is a feature common to a number of the manifestations of tardy inherited syphilis. Exacerbation at night is also a feature of syphilitic lesions, and explains the "night pains" with an ulcer in stomach or duodenum. Dieting and medical measures have only palliative action outside of specific treatment. This should not be delayed till irreparable lesions become installed. In diagnosis, the stigmata of inherited syphilis are more reliable than laboratory tests.

99. **Prophylaxis of Malaria.**—Alfaro is the new president of the national Departamento de Higiene, and Barbieri is chief of the section on malaria in the service. They outline ways and means for the more vigorous campaign planned to control malaria.

Revista Medica del Uruguay, Montevideo

April, 1918, **21**, No. 4

100 Traumatic Hernia? J. May, J. Iraola and F. A. Olivera.—p. 149.
101 *Congestions with Hypothyroidism. J. C. M. Fournier.—p. 155.
102 Anemia with Splenomegaly and Paratyphoid A. V. Zerbino. —p. 164.

101. **Congestive Form of Thyroid Deficiency.**—Fournier's patient is a woman of 35 who presents an extremely complicated clinical picture from disturbances in the glands with an internal secretion, the thyroid predominating. Her mother had had cerebral congestion with hemiplegia, as also two of her mother's brothers. The clinical history shows that there have been a succession of morbid processes of the nature of acute congestion affecting different tissues at different times. The numerous operations confirmed the congestive character of the morbid processes in bones, kidneys, intestines, etc. The various manifestations had been diagnosed in turn as subacute osteomyelitis, kidney stones, tuberculosis in bowels, kidneys or lungs, hysteric anuria, and syphilis of the nervous and cardiovascular systems. During the twenty years since these disturbances first became manifest at the age of 15, treatment had been applied on these various diagnoses until finally their transient nature was recognized, and the occasional simultaneous appearance of several morbid processes of the kind pointed to a single cause. Tentative thyroid treatment arrested the hematuria, tendency to obesity, and somnolency, falling of the hair, attacks of pains suggesting angina pectoris, and edema of the limbs, and confirmed the hypothyroidism as the main factor in the multiple manifestations. Specific treatment as for syphilis, had not modified them in the least except possibly to aggravate them. A special and misleading feature of the case described was the slight fever which often accompanied the congestive phenomena. Fournier suggests that the tendency to apoplexy in her mother and two uncles may have been also a manifestation of hypothyroidism of this congestive type. Thyroid deficiency as a possible factor in certain cases of angina pectoris is also suggested by this case. The nonrecognition of the thyroid deficiency for so many years allowed arteriosclerosis to become installed early. In conclusion, Fournier calls attention to the paradoxic reactions in the case, the bradycardia after ingrafting of thyroid tissue, and the glycosuria after iodin treatment.

Revista de Medicina y Cirugia Practicas, Madrid

May 7, 1918, **120**, No. 1505

103 *Emotional Stress as Factor in Tabes. E. F. Sanz.—p. 129.

May 14, 1918, **120**, No. 1506

104 Pediculosis and Skin Diseases. E. A. S. de Aja.—p. 161. Concluded in No. 1507, p. 193.

103. **Emotional Stress as Factor in Tabes.**—Sanz is convinced that emotions play a large part in the development of tabes. Besides traumatism, getting chilled through, and sexual excesses, emotional stress is capable of serving as the occasional, accessory, subordinate factor which may start the avalanche. In a recent case a robust man of high standing in his profession had a dispute with a subordinate who threatened to shoot him. The next day he presented gastric symptoms with jaundice and in a few days the symptoms of severe tabes became apparent.

Revista Sud-Americana de Endocrinologia, Buenos Aires

May, 1918, **1**, No. 5

105 Case of Slow Endocarditis. A. C. Grapiolo and Spada.—p. 115.

Semana Medica, Buenos Aires

May 2, 1918, **25**, No. 18

106 Destructive Sun-Burn. N. V. Greco.—p. 449.
107 Vaccination in Army against Typhoid. R. D'Ovidio.—p. 503.
108 Public Health Service Should Equalize Supply of Physicians throughout the Country. E. Accame.—p. 512.
109 *Differentiation of Gallstones and Cancer. Giacobini.—p. 514.
110 Persisting Headache May be Symptom of Thyroid Insufficiency. G. Giacobini.—p. 516.
111 Death Rate from Infectious Diseases at Buenos Aires, 1868-1917. E. R. Coni.—p. 517.
112 Prophylaxis of Tuberculosis and Venereal Disease. E. R. Coni. —p. 517; p. 518.

109. **Differentiation of Obstruction from Gallstones and from Cancer.**—Giacobini has often found it difficult to distinguish between the symptoms caused by cancer of the head of the pancreas and by obstruction of the common bile duct by gallstones. The symptoms are practically identical with each, he says, but the urine findings may throw some light on the true condition. With cholelithiasis and with pancreatitis inducing stenosis, he found uric acid abundant in the urine with both, but there was steatorrhea, besides, with the latter. With a calculus in the duct of Wirsung there is both uric acid in excess and steatorrhea, but no jaundice. With a gallstone impacted at the ampulla of Vater, there were always all three, uric acid in excess, steatorrhea and jaundice. On the other hand, with cancer of the head of the pancreas the uric acid content of the urine keeps within normal range until finally it becomes subnormal, while with gallstone trouble it was always above normal.

Siglo Medico, Madrid

April 20, 1918, **65**, No. 3358

113 *Duration of Life in Living Beings. G. Hurtado.—p. 302.
114 Cooperation of Home and School. C. Juarros.—p. 303.

April 27, 1918, **65**, No. 3359

115 The Wassermann Reaction. E. M. Villapadierna.—p. 322. Continuation.

113. **Duration of Life.**—Hurtado thinks there is a close connection between what has been observed in Loeb's and others' researches on parthogenesis, the metamorphosis of tadpoles, etc., and the phenomena of hibernation. The environing temperature seems to have a decisive influence on the duration of each phase of life under these conditions. The temperature seems to act by checking or promoting certain chemical reactions, and these reactions in turn originate hormones or toxins which are able to terminate the existing phase and initiate the next phase. If this proves to be the fact, it may yet be possible to produce certain hormones at will, hormones capable of reviving the creative power of

aged cells, keeping up a series of renovations. This would make it possible to prolong the phases of life and thus extend the duration of life far beyond the limits we know now. Experimental research is the only key to these problems.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

July 9, 1917, **18**, No. 1

116 *Acute Lymphatic Leukemia. S. Tachigara.—p. 1.
117 The Acetabulum in Japanese and Chinese. K. Shiino.—p. 23.
118 Physiology of Sweat Secretion. K. Muto.—p. 39.
119 Spontaneous Rupture of Intracranial Portion of Right Internal Carotid. Y. Kurosawa.—p. 51.
120 Asthenic Anemia. M. Kanno.—p. 69.
121 Localization of Rabies Virus. T. Koyano.—p. 91.

116. **Acute Lymphatic Leukemia.**—Tachigara states that four cases of this disease have been encountered in the course of ten years at the Tokyo medical clinic. He here reports the details of a case in a student previously healthy except that tonsillectomy had been required three years before. After a month of swelling of the glands in the neck, high fever, thirst, hemorrhagic diathesis and other signs of sepsis, the disease proved rapidly fatal, death occurring in a week, from hemorrhage in the pons region. Lymphocytes formed over 90 per cent. of the leukocytes.

120. **Asthenic Anemia.**—The clinical course and necropsy findings confirmed that the asthenic or hyporegeneration anemia in the man of 47 was the result of long continued undernourishment. The course was subacute until there came a sudden aggravation. Ulceration in the tonsils and gums seemed only aggravating, not causal, elements in the clinical picture.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 20, 1918, **1**, No. 16

122 *Paresis of Malarial Origin. B. M. Van Driel.—p. 1076.
123 *Periodicity in Ferment Action. J. T. Groll.—p. 1085.
124 *Cure of a Sick Coolidge Tube. C. H. Kok.—p. 1093.

122. **Paresis of Malarial Origin.**—In Driel's three cases the discovery of the parasites of tertian malaria in the blood seemed to be the only possible explanation of the focal symptoms observed. In one they took the form of attacks of jacksonian epilepsy with consecutive facial paresis. In the others there was spastic spinal paralysis or symptoms suggesting an abscess or tumor in the rolandic area. In the latter case an operation was considered before the blood findings cleared up the diagnosis. In all the cases the cerebral or spinal manifestations subsided under quinin, confirming the malarial origin. In the first two the malaria was in a masked form at first, but later threw off all disguise and appeared as a typical severe tertian. The train of symptoms in the first two cases certainly belong in the category of false brain tumors, but Driel says he does not know of any textbook on neurology that mentions malaria as a possible cause for such a syndrome. Wherever there is a chance for malaria to occur, it should be suspected, whatever the clinical manifestations may be, and the blood should be examined.

123. **Periodicity in Ferment Action.**—Groll recalls that in his laboratory, in 1914, De Jonge noticed that pancreatic juice kept on ice displayed fluctuations in its ability to digest lipase. Groll has been studying urease and ptyalin, and has confirmed that their catalytic power waxes and wanes. This periodicity is very distinct with pancreas lipase, kept in a refrigerator, and with urease, at 35 and 45 C. These periodic fluctuations occur also with ptyalin and with colloidal metals, but the fluctuations occur so rapidly with these that it is difficult to trace them, especially as the range of variation is less with them. Hence differences in the intensity of the ferment action at different times need not be ascribed to defects in the technic, as it seems to be a common property of ferments, possibly a consequence of their colloidal condition.

124. **Cure of a Sick Coolidge Tube.**—Kok relates that his Coolidge tube was not acting properly, and the cause of its "sickness" he traced to a small crater in the tungsten with minute scales of metal projecting from it. As the current was slowly turned on up to 4 milliamperes these scraps became white hot before the tungsten around was even red hot. By rapidly increasing the current up to 20 or 25 milliamperes, these minute flakes became fused, and he has had no further trouble with the tube with 1,200 ten minute 4 amperes' exposures since.

Ugeskrift for Læger, Copenhagen

May 23, 1918, **80**, No. 21

125 *Xerophthalmia and Dystrophy in Infants. II. C. E. Bloch.—p. 815. Continuation.
126 Lye in Laundering Does Not Sterilize. M. Christiansen.—p. 827.
127 *Roentgen Treatment of Brain Tumor. S. Nordentoft.—p. 829.

125. **Dystrophy and Xerophthalmia in Infants.**—In this second communication on the dystrophy and xerophthalmia developing in infants fed on separator milk, or other defective diet, Bloch says that his experiences in 1917 confirmed his previous statements (summarized in The Journal, May 19, 1917, p. 1516). Among the 23 cases of his 1917 series, there were 11 cases in which the eye symptoms had lasted for only a few weeks and only xerosis had developed. Six had been under his own observation in a children's home for over a year. They were known to have been previously normal, and the development of the xerosis under his eyes was as distinct and free from complications as in a laboratory experiment on an animal. The xerosis developed in half of the 16 infants in one dormitory, all about the same time, in May and June, but there were no cases among the other 78 infants in the other departments of the home. All the infants got food supposed to be good and nourishing, with albumin, vegetable margarin, carbohydrates and salt, potato soup and fruit juices, but the one group getting separator milk lost weight, and half of them developed xerosis. The vegetable margarin used in the institution evidently is not capable of supplying the substances lacking in the separator milk. But the children began to thrive at once and the xerosis subsided when cod liver oil was given the infants. All the milk used in the establishment was pasteurized, so this could not have been responsible for the xerosis group, although it may have aided in destroying the scanty valuable properties left in the separator milk, as this required extra long cooking in the gruel form. In another group of 8 cases, from the Rigshospital, the children were from 9 months to 10 years old, there was hemeralopia in 3 and keratomalacia in 3, bilateral in one case. Separator milk had been used for most of these children, with likewise a lack of lipoid elements, although the food otherwise was nourishing and varied. All this group showed general dystrophy of the type Bloch entitles alipogenetic or centrifuged-milk dystrophy, but 3 of these children had been fed on whole milk and one with canned cream besides, prepared with long cooking. The deficiency in certain fats was thus responsible for the xerophthalmia, the checking of the growth and the dystrophy.

Bloch's last group of 6 cases presented the typical picture of what Czerny calls *Mehlnährschaden* but Bloch's term for it is carbohydrate dystrophy. Three of the infants were under 6 months and only one was over a year old. The xerophthalmia was far advanced in all, with total necrosis of the cornea in one case and of both corneas in another. In addition to the symptoms presented by the fat-deficiency cases, the tissues were edematous and puffy, and the muscles were rigid; in 3 this amounted to actual hypertony of the muscles. On a change to whole milk or breast milk plus cod liver oil, with restriction of the carbohydrate intake, all the symptoms subsided, including the edema. "War edema" seems to be a similar deficiency phenomenon. One of the 23 infants died, the others recovered without loss of sight, except in one child with necrosis of both corneas when first seen.

127. **Roentgen Treatment of Brain Tumor.**—The young man presented symptoms suggesting a rapidly growing glioma in the frontal brain but it was impossible to locate it. Roentgen treatment was applied to the sides, vertex of the skull and the forehead, hoping thus to hit on the tumor at some point. The sitting was long and tedious as the patient's hands had to be held to keep him from grabbing at the light or wires. The condition grew worse in the following five days, with incontinence of stools and urine and subfebrile temperature. Then came a turn for the better which amounted to a clinical cure, and the man is still well a year later.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 71, No. 5 CHICAGO, ILLINOIS AUGUST 3, 1918

PRESENT STATUS OF THE UROLOGY OF WAR*

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It is the fortune of war that great renown is the lot of those who happen to be among the first of the wounded or the killed. But after these first few the names are lost in numbers. To this rule the members of the Medical Corps and notably of the Medical Reserve Corps of the United States Army have been a glorious exception. They were literally the first at the front, they were the first to shed their blood for their country. Hundreds of them were sent silently to the support of the British as early as May and June of last year, and from that time to this they have paid their toll of dead and wounded—they have been gassed, they have suffered the interminable daily hardships of mud and privation, of gas and shell fire. Their valiant action, their fidelity to duty are unrecorded. We may well hope that the glorious histories of these first American victims and heroes of the Great War shall find a place on the first page of the volume that shall commemorate the undying heroism of the surgeons of the United States Army in the war for Liberty.

Those of us who arrived later in France, after the American Expeditionary Forces had begun to establish themselves there, looked around for work to occupy a urologist. The situation we found was unexpected. In the armies of our allies there is practically no urologic surgery as such. Among the English the urologic surgeons have all become general surgeons. Cuthbert Wallace is a general in France. Pardoe and Freyer are doing general surgical and administrative work for the army in the British Islands. Among the French this history repeats itself: Heitzboyer is especially interested in fractures; Marion is famous for his work in roentgen localization of foreign bodies; Legueu, to be sure, retains his place at Necker in a purely urologic service; Cathelin devotes most of his time to urologic work; Rochet has published a series of operations for the reconstruction of damaged genitals. Those men in both countries whose qualifications were chiefly in the treatment of venereal diseases have ceased being surgeons altogether and are working in hospitals for the treatment of venereal and skin diseases, for venereology in France is almost if not quite synonymous with syphilology.

The reason for this situation is to be found in the material that presents itself to the surgeon's hand. At the front and even at the evacuation hospital (the casualty clearing station of the British army) there is no genito-urinary surgery as such. Penetrating wounds of the abdomen which involve the kidney or the ureter usually inflict wounds of far greater importance on such adjacent organs as the lung, the gastro-intestinal tract, the liver or the spleen. Intraperitoneal wounds of the bladder are said to be always associated with wounds of the intestine. Extraperitoneal wounds are only a part of an injury which may be a compound fracture of the thigh or of the pelvis and which not infrequently involves the rectum as well. Even the genitals are scarcely ever wounded without grave injury about the thigh or pelvis. Moreover, wounds of the urinary organs are relatively rare. Thus, 232 wounds of the abdominal viscera are classified by Rouvillois[1] as: extraperitoneal visceral wounds, 15, of which 8 involved the kidney; wounds of both thorax and abdomen, 48, of which 4 involved the kidney; intraperitoneal wounds, 169, of which 6 involved the kidney, a total of 18, or 7.7 per cent., of kidney wounds. Among 2,121 cases of abdominal wounds reported by English authors and tabulated in the Manual of the Division of Urology of the American Expeditionary Forces, there were 155 kidney wounds, or 7.3 per cent. of the total. Bladder wounds are relatively even rarer. They constitute only 4 per cent. among the 965 laparotomies reported from casualty clearing stations by General Cuthbert Wallace, and, in 1917, Legueu was able to report only forty-three cases of bladder wounds.

Thus, at the front, the wounds of the urinary organs inevitably fall into the hands of the general surgeon, and at the base the services of Legueu and Cathelin are, I believe, the only ones to which wounds of the genito-urinary tract are especially directed. Nevertheless, the total number of wounded in this war has been so great that our specialty, like every other one, has benefited by the experience. I shall try to enumerate some of the conclusions that have been reached thus far, although I must admit at the outset that my experience is all by hearsay. I have no personal experience to record, and although it is the intention of the Army authorities to establish such special centers as may be necessary for the skilled treatment of lesions of the genital and urinary tract, the occasion for this has not yet arisen.

WOUNDS OF THE KIDNEY

The war injuries to the kidney may be classified as shell wounds, bullet wounds (including shrapnel), stab wounds and ruptures. Shell wounds as a class are large and destructive and almost invariably associated with other graver visceral injuries, for even though the kidney is completely disorganized, the primary danger to life is not usually from bleeding of the vessels of this organ. They usually require primary nephrectomy.

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* Chairman's address, read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

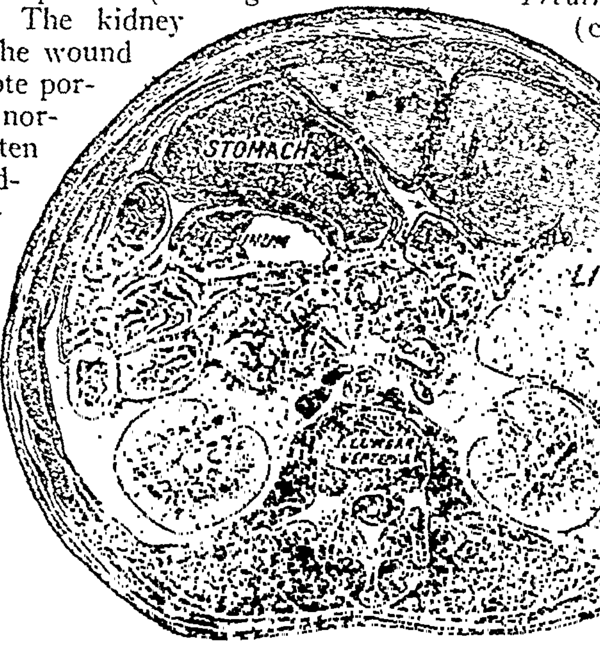
[1] Rouvillois: Bull. de la Soc. de chir. de Paris, 1916, 42, 708.

Bullet wounds, if they involve the hilum, usually sever the vessels of the pedicle and call for nephrectomy. If parenchymal, they either simply traverse the kidney, in which case it may usually be saved by excision of the tract of the wound followed by packing; but bullets may also cause rupture of the kidney requiring nephrectomy.

Stab wounds are extremely rare, and the few reported cases have been characterized by severe primary hemorrhage.

Subcutaneous rupture of the kidney is similar to the like conditions as seen in civil practice. The proper treatment appears to be conservative at first with a later operation to evacuate the perirenal hematoma and to forestall secondary infection.

Pathology.—Parenchymal wounds are classified as perforating, tangential or explosive (causing rupture of the kidney). The kidney tissue immediately about the wound is contused, but more remote portions of the kidney remain normal. It is not to be forgotten that the arteries of the kidney are terminal; hence division of an artery implies death of the portion of the kidney tissue distal to the point of arterial rupture. As has been stated above, wounds of the kidney pelvis and of the kidney pedicle are almost synonymous. A few bilateral kidney wounds have been recorded; they were all fatal.



Cross-section through second lumbar vertebra, showing relations of kidneys.

Clinical Picture.—The patient arrives at the evacuation hospital labeled "wound of abdomen," or of chest, or of buttock, or of thigh. The patient's general condition is of more immediate importance than his local one. Shock, hemorrhage, evidence of injury to intestine or lung, or even the intraperitoneal hemorrhage from spleen or kidney are the surgeon's immediate concern. A wound of the kidney is suspected if the entrance or exit of the bullet has been through the loin or if there is hematuria; but the accurate diagnosis is usually only made on the operating table. In times of push the roentgen ray is relatively little used, and even when it is used neither the roentgen ray nor the wounds of entrance or exit give an exact idea as to the course of the bullet, which may have been deflected by contact with bone.

Symptoms.—Apart from the symptoms due to shock, exposure and complicating injuries, free hemorrhage from a wound in the loin is suggestive of injury to the kidney, and hematuria is absent only if a ureter is completely divided or obstructed by clot or missile or if the wound does not invade the renal pelvis. The hematuria seems never to be so severe as to cause clotting of blood in the bladder. Retention of urine is common. The later symptoms are due to infection. Gas gangrene, sepsis, extravasation of urine and secondary hemorrhage are the causes of death at the base hospital. Secondary hemorrhage is not uncommon in the second or third week, and may occur as late as two months after the injury. It is much more formidable than the primary bleeding because of its severity, its marked tendency to recurrences and the association of sepsis. I have seen one case of renal stone as a result of infection following the wound in the kidney.

Diagnosis.—All patients with abdominal injuries should be catheterized at the first opportunity unless they can urinate freely. The urine thus obtained should be examined for blood. As stated above, wounds of the loin, especially if they bleed freely, are suggestive of injury to the kidney. When the diagnosis is obscure, it is cleared up by exploratory operation. In quiet times the cystoscope may be used with advantage at the evacuation hospital; but during a push there is no time for the employment of such instruments of precision and cystoscopy is generally employed only at the base.

Treatment.[2]—1. Inspect urine for blood (catheterize if necessary).

2. Treat shock in the usual manner, by warmth and transfusion.

3. If in doubt whether or not to operate, the most prudent decision is usually the wisest.

4. If in doubt whether to open the abdomen or loin first, open the loin (see No. 6).

5. The loin incision should be transverse and extend approximately to the edge of the rectus. It may be enlarged by a vertical transrectus incision or by vertical incision along the outer border of the erector spinae muscle long enough to permit division of all muscular and ligamentous attachments to the last rib. The twelfth dorsal nerve and artery may be avoided by placing the transverse incision a finger's breadth below the rib. Thus also one avoids the danger of inadvertently entering the pleura, through mistaking the eleventh for the twelfth rib.

6. If there is a wound of the loin and hematuria, or if the wound plainly leads to the kidney, enlarge it transversely, deliver the kidney and examine the hilum for lesions of the renal vessels.

(*a*) If the main artery or vein, or the upper main branch of the artery is wounded, perform nephrectomy.

(*b*) If smaller arteries or the lower branch of the renal artery are wounded or the renal wound is a relatively slight one, there are three alternatives. For wounds that are not very extensive or ragged and do not involve any great destruction of the arterial system of the kidney it may be wise to do nothing more than pack the loin down to the kidney. But in case of persistent hemorrhage, extensive contusion, presence of foreign bodies or division of arteries, the kidney demands the surgeon's attention; the renal wound may be packed or a portion of the parenchyma excised and sutured. At the evacuation hospital where such primary operations are usually performed, conditions are often such as to prohibit prolongation of the operation for the purpose of resecting and suturing the kidney or searching for shell fragments or bullets. Resection is, however, the ideal operation in such cases—an ideal which has been realized in a few cases and one which the surgeon should always bear in mind. When partial nephrectomy is performed, the excised portion should include all that part of the kidney parenchyma which is deprived of circulation by the division of its artery.

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[2] The paragraphs on treatment are quoted from the Manual of the Division of Urology, A. E. F., at present in press, in the writing of which the director of the division of urology, Major Hugh H. Young, M. R. C., has kindly attributed to me a certain share and to which I am indebted for many other observations in this paper.

(*c*) A small tube should be left in the pelvis of the kidney two days, if this has been opened, in order to evacuate blood clots and to hasten the return of kidney function by removing intrapelvic pressure.

(*d*) Always open the peritoneum in front of the colon in order to examine the adjacent viscera.

(*e*) Drain and suture the wound in the usual manner.

7. If more than one third of the kidney is contused, perform complete nephrectomy. If less, resection may be considered.

8. If hematuria suggests renal injury, but the wound is remote from the loin, the decision in favor of or against immediate operation should be based on the following data:

(*a*) If the patient is going to die of primary renal hemorrhage, he is likely to do so before reaching the dressing station.

(*b*) Though exploration of renal wounds usually starts a fresh parenchymatous hemorrhage, it discloses the fact that the primary bleeding has already stopped.

(*c*) Therefore, unless an external wound leads directly to the kidney region, the presence of hematuria or of retroperitoneal hematoma is no indication for immediate operation.

9. A retroperitoneal hemorrhage discovered in the course of a laparotomy may be disregarded (it often does not arise from the renal vessels at all) unless it is of enormous size, in which event it should be evacuated extraperitoneally, *before* the intestines are much handled, for it has been found that immediate grave shock results from turning the patient over and operating on his loin after laparotomy.

10. Transperitoneal nephrectomy is generally condemned.

Treatment at the Base.—All secondary operations should be preceded by *cystoscopy* to ascertain the condition of the opposite kidney and *fluoroscopy* to locate fragments of bone or missile.

Large hemotomas should be evacuated to forestall infection.

Secondary hemorrhage calls for transfusion and usually for prompt nephrectomy unless other complications prohibit this; for the hemorrhage is likely to recur and the effect of each return of bleeding is cumulative.

Sepsis is combated according to general principles of drainage and antisepsis.

Persistent *urinary fistulas* in the loin should be treated by the insertion of a ureteral catheter up to the pelvis of the kidney. In a number of cases this treatment, with daily injection of the kidney pelvis by 1 per cent. silver nitrate solution has resulted in closure of the fistula. The catheter may be left in place for an indefinite period if changed every fourth or fifth day. If healing is to occur, this may be expected within ten days.

If the fistula fails to heal, the kidney may be explored for the purpose of reestablishing the urinary flow by plastic operation or for nephrectomy, if the opposite kidney is proved sound.

The immediate mortality of operations at British casualty clearing stations for uncomplicated renal wounds has been about 25 per cent. due to shock and hemorrhage, and the added shock of anesthesia and operation. The milder, unoperated cases doubtless have a very low immediate mortality. The complicated cases have an immediate mortality of 65 per cent.

The late mortality is due to secondary hemorrhage, sepsis, renal infection and stone, and various wound complications not referable to the kidney. Apparently at least 20 per cent. of renal wounds reaching the base result in grave permanent renal lesion, or the patients die septic.

An extraction of missiles is performed after the usual localization. Any doubt as to whether the missile is actually within the kidney pelvis or not may be settled by pyelography. It is not to be forgotten that the disturbance of old adhesions about a wounded kidney may result in a tear of the colon or of the diaphragm.

WOUNDS OF THE URETER

Wounds of the ureter are usually complete and are disclosed some days after the injury either by extravasation of urine or the appearance of urine in the discharges from the wound. In a few cases a divided ureter has been found in the course of operation. As other lesions predominate, the procedure followed has been to drain the ureteral wound or at most to dislocate the severed end of the ureter up to the parietal wound. Suture of the ureter has not been attempted, and the loss of tissue is likely to be such as to render it impossible.

In a few instances urinary fistula due to partial division of the ureter has been healed by the indwelling catheter with daily pelvic lavage. In one such case, Heitzboyer diagnosed the existence of a ureteral fistula from the fact that the ureteral catheter passed to the kidney pelvis and fluid injected through this simply filled the pelvis without issuing from the wound. The fistula healed in eight days with the ureteral catheter tied in.

Primary nephrectomy is not advisable for wounds of the ureter, since it is an unnecessary added shock. Secondary nephrectomy may be performed after functional tests have been made of the other kidney.

BLADDER WOUNDS

The Manual of Urology classifies bladder wounds as:

I. Intraperitoneal Injuries.
  (A) Wounds.
    I. Uncomplicated.
    II. Complicated by:
      (*a*) Perforations of other viscera.
        1. The small intestine.
        2. The colon.
      (*b*) Fractures or injuries of bones.
      (*c*) Injury to large blood vessels.

- (B) Ruptures by concussion.
  - I. Complicated.
  - II. Uncomplicated.
- II. Extraperitoneal Injuries.
  - (A) Wounds.
    - I. Uncomplicated.
    - II. Complicated by:
      - (*a*) Injury to rectum.
      - (*b*) Injury to deep urethra or prostate.
      - (*c*) Fractures of the bony pelvis or femur.
      - (*d*) Injury to important blood vessels.

They may be due to shell, bullet, stab or rupture. The distinction between intraperitoneal and extraperitoneal wounds is an artificial one, for in many if not in most cases the missile causes both types of injury. Intraperitoneal wounds are almost always overshadowed by associated visceral injury, usually to the small intestine and sigmoid; extraperitoneal wounds, by the injuries tabulated above.

Symptoms.—There is usually an irritability of the bladder, a frequent desire to urinate as the result of which the patient either passes no urine at all or only a small amount of bloody urine in which feces may be found if there is an injury to the rectum. Later the signs of peritonitis or pelvic cellulitis appear.

Diagnosis.—As in the case of abdominal wounds, the operation on all pelvic wounds should be preceded by catheterization if the patient is unable to urinate. Exploratory operation confirms the diagnosis of wound of the bladder. Cystoscopy is usually not practicable at the evacuation hospital. Indeed; in many cases, the wound of exit is so large as to render the diagnosis of bladder injury obvious enough and at the same time to prohibit the filling of the bladder for the purpose of cystoscopy. All exploratory abdominal operations include an examination of the vault of the bladder. The injection test for the diagnosis of either wound or rupture of the bladder has been discarded as both deceptive and dangerous.

Treatment.—The toilet of the wound is performed in the usual manner and such accessory incisions made as seem necessary to disclose all of the injuries. The wounded bladder should be carefully swept with the finger in order to clear it of clots, foreign bodies or shell fragments. Intraperitoneal wounds should be closed tight and no suprapubic drainage employed unless the wound is so large and irregular as to preclude satisfactory closure. The irregularities of treatment inevitable in transport from the evacuation hospital to the base make the indwelling ureteral catheter extremely unsatisfactory.

Patients have done well after intraperitoneal wounds when not catheterized at all. In most instances, however, the catheter has been employed every four hours for four days after operation. Extraperitoneal wounds are drained either through the tract of the wound itself or by suprapubic cystostomy. Wounds involving the rectum have in many instances healed under simple suprapubic drainage. Twelve of Legueu's fifteen cases healed in this manner. The English prefer to perform a temporary colostomy of the transverse colon (in order to keep the colostomy wound well away from the bullet wound). Extraperitoneal wounds cannot usually be sutured satisfactorily.

Prognosis.—The mortality of bladder wounds is even higher than that of kidney wounds. Cuthbert Wallace reports a mortality of 56 per cent. in twenty-five cases. Patients die of shock, of hemorrhage from the iliac or femoral vessels, of peritonitis due to intestinal injury or of pelvic cellulitis, which is very difficult to control on account of fracture of the pelvis, which is a common complication.

PARALYSIS OF THE BLADDER DUE TO SPINAL INJURY

Notable progress has been made in the treatment of cases of paralysis of the bladder due to spinal injury. It is well known that most of these patients die under ordinary circumstances by the so-called "ascending" urinary infection, and we all realize that catheterization does not prevent this type of infection. Indeed, the indwelling catheter was at first the instrument of choice for many surgeons until they learned that the paralyzed bladder usually behaves very badly under this form of treatment, immediate and severe infection being the usual result. The next step was to attempt suprapubic drainage, but this prevents ascending infection little better than does the catheter.

Thomson-Walker has pointed out that although the immediate result of paralysis of the bladder is only a retention of urine, this retention gives place to a complete incontinence of urine after an interval. This interval averages sixty days, the extreme limits being, as observed by Thomson-Walker, twenty-four hours and eighteen months. Such being the case, Major Besley, M. R. C., as a result of his experience with the British army, suggested that the patient would be safer if not catheterized at all, and such is the accepted form of treatment today. The patient with a paralyzed bladder should absolutely not have a catheter passed. The bladder will promptly distend and overflow. It will not rupture, and although infection may occur, this is likely to be mild. In due course the retention gives place to incontinence, and in spite of the effects of back pressure on the kidneys and ureters, these patients are said to do very much better than those that are catheterized.

WOUNDS OF THE URETHRA AND PROSTATE

Perineal wounds of the urethra are likely to carry away the whole perineal body, leaving a cloaca which in most instances defies repair. No new surgical practice has developed in the treatment of these wounds, whether large or small, excepting that in addition to the colostomy which is employed to keep the rectal wound clean, suprapubic cystostomy is favored in order to encourage the healing of the urethral wound. Suprapubic drainage is, indeed, much more satisfactory than any perineal drainage in most cases.

WOUNDS OF THE EXTERNAL GENITALS AND ANTERIOR URETHRA

Cathelin and Rochet have reported truly extraordinary results in the preservation of the partially amputated penis. They advise the most conservative surgery until the wounds have granulated. Then the two cut surfaces of the penis are freshened by incision of all scar in such a manner that the penis is reconstituted by suture of the cut surfaces of corpora cavernosa and corpus spongeosum and the urethra. A suprapubic fistula is established in order to encourage prompt healing of the wound. In one such case Rochet was able to save the glans penis, although this had been completely severed and was attached only by the preputial skin. At the time of the plastic operation it lay embedded in a mass of granulations in a large wound in the region of Scarpa's triangle about 10 cm. distant from the extremity of the penis. In another case the completely amputated penis had become adherent in a very bad position under the pubes. It was freed by division of the suspensory ligament and transplanted into the scrotum, thereby producing a satisfactory urinary channel.

Scrotal and testicular wounds are treated with the utmost conservatism. After the casting off of sloughs, the scrotal skin rapidly covers over the testicles in a manner with which we are familiar in civil practice.

IRRITABILITY OF THE BLADDER

The one medical condition (apart from trench nephritis) that is of interest to the urologist is bladder irritability. This is an extremely common condition in military organizations whose members are exposed to privation and cold for any length of time. The symptoms may, of course, be due to gonorrhea, tuberculosis, stone, etc., but it is usually purely functional and is relieved by rest in bed for a week or two, aided by sounds and instillations.

CONCLUSIONS

This sketch of the present status of the urology of war will doubtless have no more than a temporary value. It is only within the past six months that surgeons have learned to employ the primary suture of wounds, and the extraordinary results obtained from this in all kinds of wounds will certainly react on our department of urology. In the future, many kidneys will doubtless be saved by immediate resection and many lives saved by immediate suture of the bladder in cases which up to the present time have been subjected to the dangers of prolonged drainage and the resulting infection.

Throughout this war, however, the specialty of surgery of the genito-urinary organs will doubtless continue in large measure as a province of general surgery. The expert knowledge of the specialist will be chiefly useful at base hospitals; but the urologist himself will be the chief gainer, for he will be pushed into general surgery of the most active sort and will thereby broaden his horizon and his surgical capacity. For us, as for all other surgeons, this is a glorious day. The miseries of the present generation will react happily on the generations to come, in surgery as in many other departments of human activity. Not one of you, I am sure, but feels a thrill of pride and joy at his privilege in taking a part, however small, in this renaissance of our art. Indeed, the American Expeditionary Force is a force of crusaders. One of the chief results of the war will unquestionably be a more intimate commingling of the civilizations of Europe and America, illuminated by the new knowledge which we are all acquiring while fighting shoulder to shoulder in the Army of Liberty.

Lutz Completes the Biologic Cycle of the *Schistosomum*.—After three years of extensive research in northern Brazil, Prof. A. Lutz has traced the life cycle of the *Schistosomum mansoni* from the lateral-spined ovum to the adult parasite, through the intermediate hosts, fresh-water snails, to the definite host, rabbits, guinea-pigs and man, and reproduced the clinical picture anew. The work was started at the Instituto Oswaldo Cruz, and the detailed report is soon to be published in the *Memorias* of the institute. As this parasite is not known in southern Brazil, the commission had to seek it in its haunts along the rivers of the north. Bahia is a stronghold of this parasite.

NERVOUS AND MENTAL SYMPTOMS IN EXOPHTHALMIC GOITER [*]

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The intimate interrelationship of the endocrine glands and the nervous system is nowhere better illustrated than in the symptomatology of exophthalmic goiter. Though it is now generally agreed that in exophthalmic goiter we have to deal with a thyro-intoxication, it is not surprising that the syndrome has been and still is described as a nervous disease, since many of the symptoms recognizable in this disease are admittedly due to disturbances of the neural and psychic functions. Of the four cardinal symptoms of exophthalmic goiter—tachycardia, struma, tremor and protrusion of the eyeballs—no less than three are due to abnormal innervations; and when the host of less striking manifestations of the disease is considered, it is clear that neuropathic and psychopathic phenomena predominate. Even in the disturbances often looked on as non-neural in origin—the changes in the blood, the metabolic disturbances, the disorders of endocrine glands other than the thyroid—there may later be found to exist a neural link. At any rate, at the present time, any study of the symptoms of exophthalmic goiter involves, in addition to a study in metabolism, an extensive inquiry in the domain of the pathologic physiology of the nervous system.

SYMPTOMS REFERABLE TO DISTURBANCES OF THE VEGETATIVE NERVOUS SYSTEM

Though in exophthalmic goiter both the cerebrospinal nervous system and the vegetative or autonomic nervous system (including the sympathetic system and autonomic system) exhibit deviations from normal function, it is to the latter system that the larger number of pathologic-physiologic phenomena are referable. This system, it will be recalled, through its neurones of mesencephalic, bulbar and spinal locations, synapsed with neurones the cell bodies of which are more peripherally situated in the ganglions of the sympathetic trunks and in the viscera themselves, innervates all the smooth muscle of the body, the heart muscle and all the secreting glands. Any symptom, therefore, in which there is neural disturbance of contractions of smooth muscle, or of heart muscle, or in which there is neural disturbance of glandular secretion, must be looked on as a symptom appearing in the domain of the vegetative nervous system.

Of the symptoms often met in exophthalmic goiter, let me recall to you some that come in this category. They include the following:

(a) In the head and neck:
  1. Von Graefe's sign.
  2. Dalrymple's sign.
  3. Protrusion of the eyeballs.
  4. Epiphora in some, dry eyes in others.
  5. Loewi's phenomenon.
  6. Excess, or lack, of saliva.

(b) In the respiratory system:
  1. Asthmatic attacks.
  2 Dyspnea, or tachypnea.

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[*] Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

(c) In the circulatory system:
  1. Tachycardia.
  2. Pulsus irregularis respiratorius.
  3. Vasomotor angina.
  4. Subjective palpitation.
  5. Transitory changes in blood pressure.
  6. Vasomotor symptoms, especially temporary erythemas and dermographism.

(d) In the digestive system:
  1. Gastrospasm and pylorospasm.
  2. Gastric hyperacidity or hypacidity.
  3. Spastic constipation.
  4. Unmotived watery, painless, diarrheas and unmotived vomiting.

(e) In the urogenital system:
  1. Pollakiuria, polyuria and oliguria.
  2. Certain disturbances of menstruation and of lactation.
  3. Certain disturbances of sexual libido and potentia.

(f) In the cutaneous glandular system:
  1. Profuse sweating (and Vigouroux's sign, which is probably dependent on it).

This list is long enough and its contents are familiar enough to convince us of the prevalence of autonomic symptoms and signs in exophthalmic goiter. I might have added to it certain changes in the blood and certain metabolic changes that many believe depend on abnormal autonomic innervation.

Though any one or several of the preceding symptoms may be present in a patient suffering from exophthalmic goiter, they are never all present in the same patient. Indeed, many of the symptoms (for example, epiphora and dry eyes, sialorrhea and xerostomia, constipation and diarrhea) are opposites, the presence of one excluding that of the other. As everyone knows since the researches of the great English physiologists, Gaskell and Langley, there is a double innervation in all autonomic domains; each bit of involuntary muscle and each secreting gland is controlled by two sets of neurons, the two sets being apparently reciprocally antagonistic in their effects when stimulated. Thus, stimulate one set of fibers and the heart-rate is accelerated, stimulate the other and the heart-rate is slowed; or stimulate one set of nerves supplying the salivary glands and sialorrhea results; stimulate the other set and xerostomia results. Similar findings might be cited throughout all the domains under autonomic control. Normally, there seems to be a fairly stable balance between the innervations of one set and those of the other set of fibers, this balance being temporarily and adequately upset from moment to moment by certain stimuli correspondent to physiologic needs. That in some persons, constitutionally inferior, there may be a special sensitiveness to one set of innervations at the expense of the other set seems very likely from the careful studies that have been made by clinicians; the conception of vagotonia on the one hand and that of sympathicotonia on the other, postulated by Eppinger and Hess, are doubtless by this time well known. Certain stimuli we know will pick out one set of fibers and leave the other set relatively unaffected; thus epinephrin is generally sympathicotropic, increasing the susceptibility to sympathetic innervation in practically all domains, whereas pilocarpin and atropin are vagotropic, the former favoring stimulation in most craniosacral autonomic domains, the latter, in large doses, paralyzing the same fibers.

In exophthalmic goiter we meet with very peculiar conditions. We may find in one and the same patient some symptoms referable to stimulation of sympathetic fibers (tachycardia and protrusion of the eyeballs) and some symptoms referable to stimulation of craniosacral autonomic fibers (profuse sweating; unmotived watery diarrhea). In other words, we often meet with a mixture of the phenomena of sympathetic stimulation in one domain with the phenomena of craniosacral autonomic stimulation in another domain. At times, it is true, patients are met with in which the unusual phenomena appear predominantly due to sympathetic stimulation; or, again, others are met with in which the craniosacral autonomic innervations seem to be greatly in excess and relatively unmixed. These represent the so-called sympathicotonic types and vagotonic types, respectively, of exophthalmic goiter, as described by contemporary writers, types the origin of which is now the subject of much speculative consideration, as may be gathered from the interesting contribution by Pottenger.[1] Though the facts are as yet insufficient to warrant any dogmatic assertion regarding the pathogenesis of the symptoms referable to autonomic domains in exophthalmic goiter, it is very certain that the careful analysis of these symptoms and the consideration of their relations to one another have awakened an entirely new interest in visceral neurology and bid fair to stimulate researches in a region in which further investigation promises to be particularly rewarding.

PHENOMENA REFERABLE TO THE PERIPHERAL NEURONS OF THE CEREBROSPINAL NERVOUS SYSTEM

Toxic-degenerative processes involving the peripheral neurons (both motor and sensory) of the cerebrospinal nervous system are only occasionally met with in exophthalmic goiter in a degree that arrests the attention of clinical observers. That such processes do sometimes arise in the course of exophthalmic goiter, however, is clearly shown by a study of the literature of the subject. Thus Diller has reported a rapidly developing and fatal case of toxic multiple neuritis, the patient suffering from general hyperesthesia and exhibiting an extensive atrophy of the voluntary musculature. The concomitant exophthalmic goiter may, of course, have been merely coincidental rather than causal, though Diller evidently favored the view that he was dealing with a thyrotoxic neuritis.

In the domain of the cerebral nerves, palsies have been met with not infrequently in exophthalmic goiter. The literature on the subject has been analyzed by Sattler (1909), by Kappis (1911) and, more recently, by Heuer (1916). Though any one of the cerebral nerves (except, possibly, the nervus accessorius) may be injured in exophthalmic goiter, it is the nerves innervating the eye muscles, namely, the nervus oculomotorius, the nervus trochlearis and the nervus abducens that are most frequently involved. Thus Kappis has collected about forty cases in which ophthalmoplegias of varying grade were encountered in exophthalmic goiter in the absence of any other involvement of the cerebral nerves. Isolated palsies of the nervus facialis are sometimes observed. Most interesting of all in the disease are the cases of palsy in the domain of several cerebral nerves, yielding the clinical picture of an acute, a subacute, or a chronic, bulbar paralysis. It has sometimes been difficult, apparently, to differentiate cases of "bulbar paralysis with anatomic lesion" from the cases of myasthenia gravis (or "bulbar paralysis without anatomic lesion") not so very infrequently met with in association with exophthalmic goiter. Further study is needed to decide the importance or unimportance of thymus hyperplasia in these groups of cases. What has always surprised me most in the study of patients exhibiting exophthalmic goiter, as far as the peripheral nerves are concerned, has been the constant presence of extensive evidence of disturbed function of the peripheral autonomic nerves in contrast with the apparent absence of evidence of disturbance of function (except in rare instances) of the peripheral cerebrospinal nerves.

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[1] Pottenger, F. M.: A Study of the Symptoms of Exophthalmic Goiter, Endocrinology, 1918, 2, 16.

PHENOMENA REFERABLE TO THE NEURON SYSTEMS OF THE BRAIN AND SPINAL CORD

Of the grosser organic lesions of the brain and spinal cord occasionally encountered in the course of exophthalmic goiter, none seems to stand in any direct relation of effect to thyrotoxic cause. Thus, tabes, myelitis, cerebral apoplexy, or brain tumor may sometimes occur in a patient who has exophthalmic goiter but no one would think of any other than an accidental relation existing. The same may be said also of diseases like chorea and epilepsy, when they occur in patients who suffer from exophthalmic goiter. With regard to epilepsy, however, it may be well to speak with some reserve. Despite clinical impressions, the evidence for an epilepsy of thyrotoxic origin is still too incomplete to permit of safe judgment. The remarkable fine tremor that is so characteristic of exophthalmic goiter is doubtless cerebral in origin, but we are as much at a loss further to explain its pathogenesis as we are to account for other pathologic tremors.

Most interesting to every internist are the neurotic and psychotic symptoms manifested by patients with exophthalmic goiter. The frequency of neurasthenic states, of anxiety states, and of phobic and obsessional states in patients suffering from the disease is notorious. Indeed, it is on account of the symptoms of such states that the patient most often applies, or is brought by a member of the family, to the physician for relief.

Outspoken psychoses (maniacal, melancholic, paranoid) are by no means uncommon in exophthalmic goiter, especially when there is a psychopathic heredity. Even in milder cases of exophthalmic goiter, complaints of nervousness, irritability, inability to concentrate, headache, insomnia, pains in the eyes, pressure in the head, throbbing of the vessels, internal quivering, hot flushes, fatigability, dyspnea, anorexia and nausea are very common.

The behavior of the patient is always more or less abnormal. Of this he may not himself be cognizant, though the abnormality is obvious to his family and friends and to the physician. The restlessness, the haste of movement and the overalertness of the patient are characteristic. It has often appeared to me as though the fundamental instinctive mechanisms on which the whole personality depends were functioning abnormally. Each instinctive mechanism has, as we know, a cognitive, an affective and a conative component; it involves a knowing, a feeling, and a striving. In exophthalmic goiter, it would seem as though the affective-conative processes were more involved than the cognitive.

And this view agrees well with what I have said regarding the marked involvement of the autonomic innervations of the blood vessels and the viscera in the disease. The intimate relations that exist between emotional states and visceral and blood-vascular innervations have long been appreciated; they form the basis of the James-Lange theory of the origin of the emotions. In how far the nervous symptoms and especially the pathologic emotivity of patients with exophthalmic goiter depend on a direct intoxication of the brain itself, and in how far on indirect effects on the higher nervous apparatus through an intoxication of the vegetative nervous system or of all the body cells in which the ultimate metabolic processes go on, we are too ignorant as yet to judge. I am personally inclined to lay more and more stress on injury to the lower and more primitive mechanisms.

ABSTRACT OF DISCUSSION

Dr. Joseph Byrne, New York: Regarding the simpler manifestations, as, for instance, the tachycardia, we are without explanation. We have explanations which seem to be nothing more than a crystallization of a difficult problem into a more or less simple form of statement to suit the needs of textbooks, but when we really want to get an explanation that explains we have to go farther into the subject so that no one would be interested, except, perhaps, the man who studied it himself. In regard to mechanisms, some of the work that I have done has been in connection with the paradoxical pupillary phenomenon. In experiments on the autonomic system, if we paralyze the sympathetic by removal of the supercervical ganglion we get a most extraordinary phenomenon. During the first twenty-four hours after removal of the ganglion we get nothing. The pupil is smaller than the other, but under certain conditions it becomes the larger of the two, and that is why it is called paradoxical. This phenomenon has not been explained to date and some of the best physiologists have worked on it. Anderson has given the explanation you will find in the books today, and he simply says that it is due to increased muscle irritability, which is merely evasion of the question. A curious thing that I found out about these mechanisms is that if you cut the sympathetic in the neck it takes seven days before this paradoxical phenomenon will appear, whereas, if you cut the long ciliaries, the length of time required will be the same as when the ganglion has been removed, viz., twenty-four hours. In my experiments I attempted to induce this phenomenon by applying stimuli directly to the nerves of the iris and ciliary body, but could not get any results. This corroborates other men's work. This thing is not different from the phenomena that take place in the vessels of the rabbit's ear after section of the sympathetic. Immediately after the section there is dilatation of the vessels, which, under certain conditions, gives place to constriction, which seems to be due to the hyperactivity of neurons situated peripherally near the effectors. One word about the existence of these peripheral neurons: Are they there? Anatomists say yes; but when we get farther with the anatomy we find that they are not neurons at all, but a network or syncytium. Then we ask again: What are the myoneural junctions? and we are up against the same question all the way through. To me it seems that the tachycardia, exophthalmos and other signs in hyperthyroidism may find explanation along lines similar to those hinted at here for the explanation of the paradoxical pupillary and vascular phenomena.

Dr. F. M. Pottenger, Monrovia, Calif.: The subject which Dr. Barker has ably presented in his paper interests me greatly. However, I wish to confine my remarks mainly to the question of tachycardia. The old conception of exophthalmic goiter, in which emphasis is laid on protruding eyeballs, rapid heart and an enlargement of the thyroid, is wholly inadequate. While these three symptoms are prominent, yet the disease is something entirely different. The work of Plummer and

Kendall, of the Mayo Clinic, shows that the toxic element of the thyroid (thyroxin, isolated by Kendall) is one which acts not on the nervous system directly, but on the tissue cells themselves. It acts as a catalytic agent and controls the energy output of the cells. An increased thyroid action, therefore, means an increase in metabolism, the rate being increased sometimes to 100 per cent. or more. Since the heart responds to all calls for increased energy, and is influenced by nervous and psychic states, it is but natural that the heart should be rapid in this disease, even without there being any specific direct stimulation of the cardiac fibers of the sympathetic nerves. We must look on this disease as being one of metabolic disturbance accompanied by a general disturbance of nerve balance and psychical equilibrium.

PITUITARY DISTURBANCE IN ITS RELATION TO THE PSYCHOSES OF ADOLESCENCE *

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One should always be cautious in exploring a more or less new field, but not so excessively prudent that the gathering of material and the discovery of truths become impossible.

Quickly to orient ourselves, we must deal briefly with the pituitary gland and some of its disorders, then with adolescence in general and some of its mental disturbances, and after this consider the bearing the one may have on the other.

Function.—Each of the three parts of the pituitary body has been endowed by investigators with separate functions. Among the functions of the anterior lobe are body growth and the development of secondary sex characteristics. It may also have to do with the regulation of the menstrual period in the female. Two of the chief functions of the posterior lobe are the control of carbohydrate metabolism and an influence on blood pressure stability. It seems also to play a part in uterine tonicity and probably that of other involuntary muscles. The functions of the intermediate lobe are not settled.

Schmidt and May[1] believe that the active principle of the posterior lobe is derived from the tethelin produced by the anterior lobe, and we know that the pituitary gland is actively connected with most of the other endocrine glands. The anterior lobe of the pituitary is said to be derived from the epithelium of the oral cavity, and the posterior lobe, from the cells of the interbrain.

Disorders.—Total extirpation of the pituitary gland is fatal, and of the anterior lobe is fatal, but of the posterior lobe is not necessarily so. Cushing has apparently shown that either undersecretion or oversecretion of the pituitary may be associated with hydrocephalus. Cushing, myself[2] and others have shown that hypopituitarism seems the responsible factor in certain cases of epilepsy. The pituitary gland may be functionally disordered by illnesss, injury, tumor, adolescent changes, or pregnancy.

In general, hypopituitarism beginning before puberty exhibits obesity, smooth skin, lessened perspiration, diminished body hair, undersized genitalia, and in the male a tendency toward feminine appearance, or in the female diminished menstruation or amenorrhea. If the anterior lobe is especially affected, we usually have in addition slow pulse and voracious appetite. If the undersecretion especially affects the posterior lobe, we note lowered blood pressure, increased sugar tolerance and adiposity.

On the other hand, hypersecretion occurring before puberty may account for precocious mental and sexual development, excessive body hair, long bones and early puberty. One of my patients has menstruated regularly since her second year and had fully developed pubic hair at the age of 6 years. If the anterior lobe is especially affected by hypersecretion, the sex characteristics are prominent and an increased libido is often present. Hyperactivitiy of the posterior lobe will account for decreased carbohydrate tolerance and at times increased blood pressure.

In discussing certain mental changes connected with pituitary secretion, Cushing, in his book, noted temperamental changes, wakefulness, lack of concentration, indecision, irritability and distrust occurred with hypersecretion. With hyposecretion, he found disturbances ranging from mild psychoses to extreme mental derangement, epilepsy, inability to concentrate, impairment of memory and, at times, drowsiness. In 1914, I[3] also described certain mental conditions and changes in personality due to disturbance of the pituitary gland.

Adolescence.—Now that the field has been briefly prepared, it will be well to consider some of the general characteristics of adolescence, which, as Stanley Hall says, is "a new birth—for the higher and more completely human traits are now born."

At this period, in a few years, the boy and the girl crystallize into the man and the woman. Adolescence is especially marked by development in physical and sex characteristics; by changes in emotion, love, conduct, ambition and domestic relations; by an elaboration of tastes, desires, dress, social instincts and religious views; by self-consciousness and self-analysis.

During the course of these and other changes, many what we may term physiologic-psychic upsets occur. In both sexes the imagination is overstimulated, judgment is not logical, sex attraction is based on passing fancies, extremes of fashion are indulged in and superstition is rampant. There is a craving for the dramatic and the mysterious. Most actors begin their profession during adolescence and secret societies flourish with adolescent members. Extremes of opinion and excesses of every kind are more common to adolescence than to any other period.

There is little wonder, therefore, that during this time, when the mental balance is upheld by so unsteady a hand, that it should frequently topple over. When this does occur, emotional instability becomes pathologically manifest by sexual perversions, crime, suicide, hysteria or dipsomania; menstrual disturbance, illness, injury, or shock may develop latent psychoses; and preexisting defects of development or bad heredity may now be recognized as dementia praecox, manic-depressive states, or paranoia.

It has been shown that there are definite changes in the pituitary gland at puberty, manifested clinically by changes in bone growth, fat, sugar tolerance, sex characteristics, body hair and in personality. Cushing cites an instance in which there were two distinct types, descended through the males, traced for several generations: a "virile type," with early hirsuties; and a smooth skinned-comparatively hairless, and what the patient called a "girlish type," in which adolescence is delayed usually until the seventeenth or eighteenth year. Sudden growth at this period may be taken, in certain instances, as an index of the activity of this gland. One of my patients grew 9 inches during the summer of her sixteenth year and afterward died of a neighborhood pituitary tumor; a boy with congenital syphilis grew 13 inches in thirteen months, beginning at his sixteenth year; and an undeveloped boy grew seven-eighths inch in five weeks on pituitary feeding.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Schmidt, C. L. A., and May, E. S.: Jour. Lab. and Clin. Med., 1917, 2, 708.

[2] Tucker, B. R.: South. Med. Jour., 1914, 7, No. 8, 608; Virginia Med. Semi-Month., April 7, 1916.

[3] Tucker, B. R.: South. Med. Jour., 1914, 7, No. 8, 9608.

Pituitary Psychoses of Adolescence.—In studying this subject, I divided my cases into the following groups:

Group 1. Those cases which gave evidence of preadolescent hypersecretion, with an apparent increased hypersecretion during adolescence.

Group 2. Those cases which gave evidence of preadolescent hypersecretion with an apparent marked decrease in the secretion occurring during adolescence.

Group 3 (a). Those cases with a preadolescent approximately normal history, in which during adolescence the secretion was increased.

Group 3 (b). Those cases with apparently normal preadolescent secretion, which during adolescence seemed to have a decided decrease in the pituitary secretion.

Group 4. Those cases in which there had been preadolescent hyposecretion and, in which during adolescence the secretion appeared to be still further decreased.

It was thought that our present clinical knowledge was too indefinite to attempt to separate into groups the cases in which symptoms of the anterior or posterior lobe seemed to predominate, although at times such predomination was noted. Also, for the reason that in all cases both lobes appeared to be more or less affected, the secretion of the gland was considered as a whole.

GROUP 1

Case 1.—In a woman, white, aged 26 when seen, the psychosis began at 12½, without cause except adolescence. The menses appeared at 11. The father showed evidence of hypopituitarism. Her development was precocious mentally, physically and sexually. The cheek and jaw bones were prominent. The body hair was so much increased that at 15 she had to shave her entire arms when she put on short sleeve dresses. This hair was afterward removed by a chemical. The breasts were fully developed when she was 9 years of age. The pulse was 70; the blood pressure 125 systolic, when 26. A radiograph showed a large fossa, with smooth, clinoid processes. Mental symptoms began at 12½ and consisted of hypersensitiveness, night rigors, wondering what the people she saw would look like when dead, transient hallucinations, loss of affection for her mother and sudden changes from gaiety to solemn intenseness.

FINDINGS IN PITUITARY PSYCHOSES OF ADOLESCENCE*

Classification	Clinical Findings	Roentgen-Ray Findings	Psychosis	Incidence
Group 1 Preadolescent oversecretion, with further increase during adolescence	Increase in body hair and sexual development and mentally precocious	Large sellae, with regular contour and smooth clinoid processes	Prejudices and infatuations, increased libido psychomotor acceleration, sudden changes in temperament and usually transient hallucinations	Rather frequent
Group 2 Preadolescent oversecretion, with decreased secretion during adolescence	Same as Group I, with apparent arrest at puberty	Large sellae, with probably irregular outline and some thickening of posterior processes	Drowsiness or probably trance states, with disturbance of pulse and blood pressure; other endocrine glands usually also affected	Rare
Group 3 (a) Preadolescent normal secretion, with increased secretion during adolescence	Previous history normal, or practically so, with marked increased libido and sex characteristics during adolescence	Not definite	Increase in libido and general nervousness, but rarely amount to definite psychoses.	Common in moderate degree, but mental changes rare
Group 3 (b) Preadolescent normal secretion, with decreased secretion during adolescence	Previous history normal, or nearly so, with delayed adolescence, frequently increase in fat and sugar tolerance; appetite voracious; pulse often slow and blood pressure low	General size of sellae about normal, but thickening and enlargement of clinoid processes, especially the posterior; encroachment on fossae usually shown	Dull, seclusive, self-absorbed; repetition of movement common; difficulty in expressing themselves in writing; unemotional, unaffectionate, obstinate, irritable; may or may not have hallucinations and delusions; resembles dementia praecox	Frequent
Group 4 Preadolescent undersecretion, with further decrease during adolescence	Previous history normal, usually increase in fat and sugar tolerance, underdevelopment of genitalia, lack of body hair, lessened perspiration, voracious appetite, delayed adolescence and often amenorrhea in female	General size of sellae small, contour irregular, processes enlarged and encroach on fossae and club or tend to bridge	Psychosis is usually not very profound; have dulness, irritability, tardiness, lack of ambition, often truancy and sometimes epileptoid convulsions	Rather frequent

*Usually these psychoses are preceded by illness, injury or great change in environment.

Case 2.—In a girl, white, aged 15½ when seen, the psychosis began at 14½, after a spell of homesickness. The mother was neurotic, and one sister had hyperpituitary symptoms. At the age of 15, she looked as if she were 20. The menses began at 13 and occurred every two weeks with excessive flow. She was precocious in her studies and sex characteristics, and her body hair was excessive. The blood pressure and pulse were normal. There was no history of drowsiness. The thyroid was enlarged, but there were no other hyperthyroid symptoms. A roentgenogram showed a large sella, 10 mm. wide and 12 mm. deep, with smooth anterior and posterior clinoid processes. Mental symptoms began at 14½, and consisted of "baby talk," hysterical seizures, writing up and down on paper instead of across, tantrums, loss of affection for mother, carrying on imaginary telephone conversations, playing imaginary basketball, infatuations for various men and women and persecutory ideas. These symptoms gradually disappeared, and she is now a well-ordered young lady of 19 but still has menorrhagia

The roentgenograms in this group show large sellae with smooth clinoids. The most prominent of their mental symptoms are unreasonable prejudices for some people and infatuations for others, increased libido, psychomotor acceleration, transient hallucinations and sudden changes in temperament. The psychosis of this group may be said to resemble more or less what has been called profound hysteria.

GROUP 2

Case 3.—In a girl, aged 15 when seen, the psychosis began at 14½, after a fever. The family history was negative. She was overdeveloped sexually, although about normal size and with normal features. The body hair was increased, and she was precocious in her studies. She had marked vasomotor mottling and flushed easily. The blood pressure was 148 systolic and 95 diastolic. The pulse was 130, and the thyroid was slightly enlarged. The menses were free and began at 12½. A roentgenogram showed that the clinoids were enlarged and the fossa was encroached on, although it was not small in general contour. The psychosis consisted of periods of a trance state, lasting days, in which she refused food, sighed deeply and would not talk. Out of these trance states, she would come suddenly.' She had no delusions or hallucinations. She was affectionate to her family and very fond of dress. She was given anterior lobe pituitary gland extract and became well in about three months. With this feeding, the blood pressure dropped from 148 systolic to 130, and her pulse came down from 100 to 80. The urine was entirely negative. The hyperthyroid symptoms disappeared.

I am of the opinion that this group is very small. Only a few cases could be separated, of which the foregoing is the best example.

GROUP 3 (A)

There are a great many normal preadolescents who show marked signs of hyperpituitary symptoms during adolescence. In fact, a moderate extent of this is usual and normal. It is possible for this increased pituitary secretion to cause pathologic symptoms, but this is probably infrequent, for we could separate only a few cases belonging to this group. In consequence, we hardly feel justified in describing it.

GROUP 3 (B)

Case 4.—In a boy, aged 14 when seen, the psychosis began at 13 without known cause, except adolescence. The family history was negative. The patient was rather a thin boy somewhat small for his age. At 14, the genitals were rather small and showed no signs of enlarging, and there was no sign of body hair. He complained of considerable headache. He had done very well in his studies until recently. There was no history of drowsiness. A roentgen-ray examination of the fossa showed a sella of about normal size, but with enlarged anterior and posterior processes, which showed clubbing at the ends.

The psychosis was interesting, in that he had marked repetition of movements, in which he would go up and down the front steps as many as 14 or 15 times before he could start to school; he would cross and uncross his legs until stopped by his parents and repeat many other acts. He could not concentrate enough to write a postal card, although the letters he would make were perfect. He could not dress himself. He would make grimaces, jump up and whirl and was excitable and irritable. His thought processes were slow. No definite delusions or hallucinations could be made out. He was put on whole gland pituitary extract and gradually became normal.

Case 5.—In a woman, aged 18 when seen, the psychosis began at 16. There was no precipitating cause but adolescence. Her father's people were large, one sister had myxedema, and two brothers were very stout. She was about average size for her age, and her features were rather small. The genital and body hair was negative except for a fine, fuzzy growth of hair on her back. She had a headache which was corrected with glasses. The blood pressure and pulse rate were normal. She had some drowsiness. She was a good student till 16, and then became a poor one. The menses began at 13 and were regular. The thyroid was rather full, but she had no hyperthyroid symptoms except a fine hand tremor. A roentgenogram showed the sella was about normal in size, but both the posterior and anterior clinoids were rough and enlarged and tended to bridge. The psychosis consisted of very poor memory, dulness at school and hallucinations of faces peeping at her and of hearing voices. She had become indolent, unaffectionate and indifferent and could not concentrate in writing. She was obstinate and appeared most of the time wrapped in her own thoughts. She recovered with whole gland pituitary feeding for three months.

This group, we believe, is the largest of all. The psychoses resemble dementia praecox. The preadolescent pituitary symptoms are negligible. The patients begin to be dull in their studies, seclusive and self-absorbed. Repetition of movement is common. Hallucinations and delusions may or may not be present. Difficulty in expressing themselves by writing is common. The patient is usually unemotional and unaffectionate, and obstinate and irritable if disturbed. The roentgenograms show thickening and enlargement of the clinoid processes, but the general size of the sella is about normal.

GROUP 4

Case 6.—In a boy, aged 15 when seen, the psychosis began at 14½. The family history was negative. The boy was very fat, belonging to a mild dystrophia adiposogenitalis type. He had never been a very good student. Six months previous, he had an epileptic convulsion and two others in the next few months. The psychosis began with loss of ambition, inattention, laziness, obstinacy, lack of emotion, irritability and wanderlust. Once he ran away from home and was found after many weeks in a distant city. A roentgenogram showed a very small sella, with the posterior clinoids rough and large and bridging across the fossa to the anterior clinoids. In less than a year of feeding with whole gland pituitary extract, the patient went to college and has been there for a year. He stands well in his class, his conduct has been exemplary and he has had no more convulsions.

Quite a number of cases belong to this group, although the psychosis does not seem to be very profound. It consists chiefly of irritability, mental dulness, tardiness, truancy and general lack of ambition. In some cases, epileptic convulsions occur. The roentgenographic findings are those of a small crowded fossa.

CONCLUSION

There seem to be definite reasons for believing that pituitary adolescent psychoses exist; that these psychoses may be divided into groups according to the clinical preadolescent status in comparison with the adolescent symptoms; that the roentgenographic findings correspond to the clinical type of the case, and that, in cases which show decreased pituitary secretion, the response to pituitary feeding is prompt and satisfactory.

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ABSTRACT OF DISCUSSION

Dr. Archibald Church, Chicago: On reviewing my own material I am disposed to feel that Dr. Tucker's classifications are not only suggestive, but likely to lead to a more definite conception of these conditions. I recall at least three patients with pituitary disease, young persons, in all of whom the pituitary condition was verified either by postmortem or at operation. They presented the symptoms of pituitary deficiency in the lack of development, and especially in sexual retardation, and a mental picture that was practically parallel. All three of these boys showed decided precocity. One was a draftsman of high order at the age of 12, and one showed mechanical ability of an unusual constructive degree. But in association with these particular aptitudes there was a deficiency in other directions that notably placed these boys below the average of their mental age. I was enabled to detect the third case, so to speak, by my association with the first two because of the parallelism presented by the mental attributes as well as the symptomatic manifestations. This elaboration of the disturbances associated with pituitary defect which Dr. Tucker has given us in a sense confirms the heterogeneous recollections I have of cases of this character. I do not know that I am at the present time disposed to accept without considerable reserve the generalizations at which he seems to have arrived, but as suggestive of work in this field I look on his paper as of a very high order.

MEDICAL SERVICE IN THE CONSERVATION OF INDUSTRIAL MAN POWER *

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It must be realized that a decisive victory can not be gained by the Allies until the resources of the United States in men and supplies are made available for that purpose.

Our national war problems are (1) to mobilize and train for military purposes approximately 5,000,000 men, (2) to manufacture the supplies necessary to provide them with facilities for fighting, and (3) to transport men and supplies to France quickly and safely.

The production and transportation of supplies enough to maintain a fighting force of 5,000,000 men, it is estimated, will require the work of at least 25,000,000 people in the mines and on the farms, in the factories and on the railroads and the ships. This means a tremendous industrial expansion. It has already begun. Small factories have become large establishments, and rural communities have become centers of industry.

CONDITIONS OF INDUSTRIAL EXPANSION

Labor was not prepared to meet the requirements incident to this expansion. Our foreign supply has been cut off for four years. The men for the Army are being removed chiefly from the existing supply. To meet the deficiency, women are now doing the work of men, and men are leaving clerical and other less gainful occupations for more arduous but better paying jobs in the war industries.

There is much shifting of labor, probably due to the unusually high wages offered by certain of the war industries, as well as the fact that the recruits do not readily find occupations for which they are suited. This shifting of labor, or "labor turnover" as employers call it, is fraught with possibilities for wastage and expense.

Parenthetically, it may be said in explanation that the term labor turnover expresses the relation of the number of employees who leave to the average number necessary to maintain the working force, and it implies the replacement of those who leave by the hiring of new people. A turnover of 400 per cent. a year, which is by no means unusual, indicates that a number equal to the whole working force leaves every three months and that an equal number must be hired during the same period.

To develop and maintain a capable man power is a national problem, on the solution of which depends, to a considerable degree, the effectiveness of our expeditionary forces. Although this is a national problem, the position occupied by the manufacturers of war supplies confers on them the obligation of leadership. If they desire to have their establishments manned by stable, capable working forces, they must at least provide the organizations and equipment necessary to select efficient workmen and to maintain them as such.

One hundred and seventy industrial establishments have recently been visited for the purpose of studying the activities of physicians in the industries. These studies have naturally led to a consideration of all activities used by modern industry to stabilize and make efficient the working forces.

It has been observed that the modern employer has these facts in mind: that the most capable workman is (1) healthy, (2) free from worry, and (3) engaged in work he likes and is able to do rapidly and well. Such an employer, so far as possible, selects as his workmen people who are healthy and contented and assists them to remain so; assigns them to work for which they are fitted or trains them for work they may be able to do; and provides them with such supervision, methods and facilities as will enable them to reach and maintain their greatest productivity.

DUTIES OF THE EMPLOYER

The specific duties of an employer who wishes to develop a permanent, capable working force are to provide: (1) a safe, healthy place in which to work; (2) machinery, tools, methods and processes which permit rapid work of good quality, with health and body hazards reduced to a minimum; (3) competent supervision; (4) the organization and equipment necessary to ascertain the type of work an applicant for employment is temperamentally, physically and by training fitted to perform; (5) special facilities for training inexperienced help when qualified workers are not available; (6) physical supervision; (7) protection from communicable diseases; (8) medical and surgical treatment when the employer is responsible; (9) medical and dental prophylaxis; (10) adequate nourishment at cost, or otherwise, during the working days; (11) periods and facilities for relaxation and recuperation when the work is monotonous, concentrating or exhausting; (12) instruction in keeping well and avoiding injury; (13) opportunities for education and advancement; (14) assistance in adjusting difficult social and financial relations, and (15) encouragement of thrift, domesticity, morality and sobriety.

THE PHYSICIAN'S PART IN THE PROGRAM

The special knowledge and skill possessed by physicians peculiarly fit them to assist employers in carrying out the foregoing program, and the most useful industrial physicians are those who are most able to use their abilities to that end. Their activities in so doing are named and discussed under the following headings:

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* Read before the joint meeting of the Section on Preventive Medicine and Public Health and the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Assocation, Chicago, June, 1918.

1. *A Safe, Healthy Place in Which to Work.*—By frequent and regular tours of inspection of the establishment and its premises, the physician may assist the employer materially in avoiding the occurrence of insanitary and unhealthy conditions. When this duty is delegated to an engineering or safety department, as it occasionally happens, the physician should arrange to accompany and tactfully to aid the regular inspector. During the tour, observations should be made concerning waste and sewage disposal, washing and toilet facilities, ventilating, illuminating, heating or cooling systems, suction devices, sweeping and cuspidor service, etc.

Bacteriologic analyses of the drinking water should be made frequently and regularly, unless the source of supply is unimpeachable. If the establishment has an installation for regulating the temperature of the drinking water, occasional temperature tests at the faucet should be made.

2. *Machinery, Tools, Methods and Processes Which Permit Rapid Work of Good Quality, with Health and Body Hazards Reduced to a Minimum.*—Certain industrial processes require the use of chemicals which are known to be inimical to health. A knowledge of the effects of these processes on the human body enables the physician to aid the employer in safeguarding the processes in which such chemicals must be used.

Data obtained by the medical department in recording injuries should be made available for the purposes of accident prevention. In this manner, attention may be directed to machines or tools or methods that are repeatedly the cause of injuries.

Research into the physiologic effects of monotonous, concentrating or exhausting operations will qualify the physician to act with the employment department in the placing of new operatives. Such research will also serve to elevate the practice of industrial medicine to a higher scientific level.

3. *Competent Supervision.*—Employers are frequently unable to obtain a maximum of productivity out of their establishments for the reason that they overload some and underload others of their operatives. The intimate information that comes to a physician permits him to supplement the technical knowledge of the employer, and together they are able to distribute equitably the work to be done.

Good will is essential to competent supervision. The industrial physician finds himself many times in a position in which he can bring both employer and employee to an understanding of each other. While this is not a function of medicine, listening to other folk's troubles has become an obligation to physicians whether in the home or the factory. It is a tribute which the whole world pays the physician. The industrial physician should betray no confidences. He should at all times be fair. His position as adviser to the employer and "big brother" to the employees, though delicate, has opportunities which he must recognize in order to succeed as an industrial physician.

4. *Organization to Ascertain the Kind of Work an Applicant for Employment is Fitted to Perform.*—In modern establishments the qualifications of an applicant for employment or reemployment are analyzed before he is assigned to work, and physical fitness is one of the qualifications considered. As the physician is trained to detect bodily impairments, this part of the analysis is delegated to him. The usual procedure is an inspection designed to bring out the obvious defects, such as cardiac lesions, hernia, varicocele, hydrocele, varicosed veins, deformities, imperfect vision and the communicable diseases, including the venereal.

Because of the conditions imposed on employers by the compensation acts, physical impairments that are at all likely to result in incapacity of a disputed origin, or are apt to influence the cause or severity of accidental injuries, are regarded as sufficient causes for rejection. This policy is not in conformity with the most advantageous use to which the information gained by a physical examination could be put, and were the policy continued, eventually some very capable, though physically imperfect, workmen would be kept permanently out of industry.

Fortunately, the urgent need for labor in the manufacture of war supplies has caused a relaxation in the stringency of the rejection of impaired applicants for employment, and the knowledge gained by physical inspection is used for the purpose of defining their limitations rather than as cause for their rejection. The presence of a communicable disease or an obviously disqualifying defect is still considered sufficient to justify rejection. Some establishments have given up physical examinations for the present, because of the shortage of labor.

In one large plant, the following routine was used by the medical department in making inspections of the many applicants for employment: The prospective workman was weighed and measured for height by a clerk. Another clerk tested his vision, one eye at a time, by holding aloft one or more fingers. The applicant then joined a long line of his fellows, and passed, with shirt and trousers unbuttoned in the front, before a doctor who applied a stethoscope to the chest and palpated the external inguinal rings. The query quickly arises. Is it worth while for a physician to do this kind of work? If the physician is to be of use in the selection and the assignment of employees to work, he should make his examinations sufficiently thorough to uncover the true conditions. He should, further than that, gather data that would enable him to make scientific studies of the relations of physical impairments to capacity for work. He should, still further, study conditions under which employees work, in order that he may intelligently advise with the employer as to the effect of working conditions on the health of the workers, to the end that those conditions which impair the health and efficiency of the workers may be eliminated. This he cannot do without full knowledge of the physical defects of the employees when they enter the establishment.

5. *Special Facilities for Training Inexperienced Help When Qualified Workers Are Not Available.*—Employers are finding it increasingly necessary to equip and maintain schoolrooms in their establishments, where apprentices and other untrained applicants for employment may be taught special trades. For instance, a woman is taught to run a machine that was formerly operated by a man.

Here is a splendid opportunity for a physician to tell the new employees how they may avoid illness and injury, particularly if their work involves a hazard, and also what to do when they become sick or injured.

6. *Physical Supervision.*—If the industrial physician is to supervise the health of the employees, he

should examine them with sufficient frequency to keep thoroughly familiar with their conditions of health. Process workers subjected to special hazards, such as lead, should be examined at least monthly. If an employee's production has fallen off, he should be reexamined, unless the reason is evidently not physical. When an employee does not feel well, or has the appearance of illness, the doctor should ascertain the reason by a reexamination. When pathologic conditions have been found they should be checked up by an occasional reexamination. In justice to both employer and employee, a process worker who expects to leave the service of the company should be given a reexamination before being permitted to do so.

7. *Protection from the Communicable Diseases.*—While it may not be practical for a physician to visit personally every employee in the establishment each morning, it should be understood among the foremen and the employees that any person who has a breaking-out, or does not feel well, should be sent to the physician. This service is very necessary during epidemics. There should be thorough cooperation between the public health authorities and the industrial medical department.

8. *Medical and Surgical Treatment When Responsible.*—Laws have placed the responsibility for injuries sustained by employees while engaged at work on the employer, and inasmuch as the employer has to pay the cost, he finds it to his advantage to secure the service of a physician experienced in emergency surgery. The physician obtained his introduction to industry in this manner, and the modern industrial medical department is the creation of the pioneers who saw possibilities for usefulness in the industries beyond the treatment of accidental injuries. It is regrettable that there are still physicians in the industries who do not seem to realize that the repair of injuries is but a small part of the work they are capable of performing.

In a few states, lead poisoning and certain other occupational diseases are compensatable and employers in these states provide medical service for patients suffering from those diseases.

The care of injured employees involves a wide range of professional activities and the further a man develops in industrial medicine, the more he delegates to the specialists. He is rapidly evolving, in a sense, a clearing station for the special practitioners. In fact, the dispensaries of the establishments in large cities have already become industrial casualty clearing stations, and the time will come when many large industries will have sanitarians, epidemiologists, internists, surgeons, oculists, dentists, orthopedists, roentgenologists, bacteriologists and laboratory technicians attached to the staff of their medical departments, even as some of them do now to a limited extent.

This does not indicate that the industries will enter into competition with the individual practitioners of medicine. On the contrary the plan will disseminate a knowledge of the value of competent medical service and stimulate a demand for service of that character outside the industries.

9. *Medical and Dental Prophylaxis*—This is health education by practical demonstration. It consists in the treatment of the many trivial illnesses that occur among industrial people through ignorance or through a lack of a realization of the necessity for the care of the human body. It is applied only under those conditions for the alleviation of which the average person would not seek professional advice. It is limited to the treatment of headache, constipation, colds, the cleaning of neglected teeth, etc.

10. *Adequate Nourishment During the Working Day.*—To obviate the depressing effects of a cold lunch washed down by cold water, employers are now providing restaurants or cafeterias for the noon luncheon and milk, coffee and soup stations for morning and afternoon refreshment.

The physician is in a position to suggest menus that are adapted to the type of employees and the character of their work. Through cooperation with the public health authorities, he is also able to assist in the selection of safe food and milk supplies. He should exercise supervision over the sanitation of the kitchen and watch for the presence of communicable diseases among the food handlers.

11. *Periods and Facilities for Relaxation and Recuperation.*—Many establishments have rest rooms for the use of their employees, especially those industries in which women are engaged. What employees need relaxation, rest or exercise, when they should have it, and for how long a period, are proper questions for a physician to decide.

A few large concerns have country clubs and sanatoriums where run-down people may be placed for restoration. To whom this privilege should be extended, and under what conditions the restoration period should be spent are also questions for the physician to decide.

12. *Instruction in Keeping Well and Avoiding Injury.*—The safety-first movement has impressed employers with the value of education in the prevention of accidents. They also perceive the value of education in the prevention of sickness, and they must rely on their physicians to conduct the instruction.

Whether this should be done through the medium of bulletins, lectures or personal talks depends on conditions and the personality of the physician. This is a field that has wonderful possibilities for usefulness to the physician.

13. *Opportunities for Education and Advancement.*—Special courses planned to prepare industrial workers for advancement are very popular, and the public schools, the Y. M. C. A. and the correspondence schools are all conducting such courses. They provide the doctor with an excellent opportunity to impress the ambitious workman with the value of his own health and to convince him that his ability to advance depends on his physical well-being.

14. *Assistance in Adjusting Difficult Social and Economic Relations and Encouragement of Thrift, Domesticity, Morality and Sobriety.*—There is a tangible relation between a man's home and community life and his industrial efficiency. The greatest sources of worry that beset a workingman are those which belong to his private affairs, yet they are of definite interest to the employer, who realizes that worry is capable of absorbing a tremendous amount of an employee's attention to his job.

Because of the fact that the problems involving the lack of thrift, domesticity, morality and sobriety sooner or later terminate in health problems, the doctor eventually becomes professionally interested. But before these problems become health problems, they are brought to the physician, if he is the type of practitioner who encourages confidences, and he does not need to be a busybody to become interested and to assist.

It must be remembered that when these troubles come into the life of a workingman, they are big and engrossing, and the person who lends sympathetic assistance at that time gains a lifetime of affection. As the one person in an industrial organization to whom the workers may go with their troubles, the physician has an opportunity to do something for the employees that no employer can do, and he has the opportunity to gain for the employer the good will that the latter so much desires and is otherwise unable to acquire.

ON THE FIRING LINE OF INDUSTRY

It is evident from the foregoing that there is much work for the medical profession to do in connection with the movement to conserve our nation's industrial man power. If our country's integrity demands that the energy of our working population be brought to its highest degree of efficiency and maintained at that degree, then physicians are just as greatly needed on the firing line of industry as they are on the firing line of battle.

Unfortunately, when the United States recognized a state of war as existing, the value of industrial medical service was not realized. It was said that the industrial surgeons were just the type of physicians the Army needed, and they were urged to leave the industries for the uniformed service, and now, even though competent medical work is known to be necessary to the adequate production of war supplies, employers are finding it increasingly difficult to obtain the services of qualified industrial physicians.

There are three important causes for this condition. 1. Many industrial physicians have gone into the Army and Navy. 2. The medical men who have the courage to remain in industrial work are crucified on a slacker's cross by popular opinion. They are gradually going into the military service. 3. Other physicians, however well educated they may be for the practice of medicine, have not been trained to apply their knowledge to the purposes for which the manufacturing establishments exist, and are consequently poorly adapted to perform industrial service.

Either the industries must be content with a limited medical service consisting in that which can be rendered by first aid men, nurses, and physicians called in on emergency cases, or there must be devised for them a plan to attract physicians to and train them for industrial service.

SPECIAL TRAINING FOR INDUSTRIAL MEDICAL SERVICE

Such a plan should have government authorization and supervision. Industrial medical service should be recognized as a patriotic service. Competent men should be attracted to it. They should be given intensive courses of training and assigned to industries on request or detailed to industrial districts where several small establishments can be served by one man.

Provision should also be made for the training and assignment of first-aid men, so called, and nurses, who may act as assistants to the physicians.

Conditions outside the industrial establishments which influence the health and stability of the workers should also be considered. If, for instance, it is necessary to surround the cantonments by zones in which liquor may not be sold and vice may not be trafficked in, it is equally necessary that the working people in the industrial centers be similarly protected.

In times like the present when our national integrity depends on the virility of our national man power, medicine is offered its supreme opportunity. The profession has recognized the opportunity. To win the war is the physicians' supreme purpose; to serve humanity is their supreme privilege.

If great demands appear to have been exacted of the medical profession, they have been inspired by the profession itself. If there have been sacrifices, they were voluntary. If there are to be more sacrifices, they likewise will be voluntary. Medicine is determined to share in the glorious privilege of destroying the "iron cross."

Physicians prefer to serve on the battle front where personal danger is forgotten in the splendid work of restoring our fighting men who become injured to fighting condition. But if the call comes for physicians to enlist in our country's service in order to restore to working condition the working men who become sick or injured, then physicians will just as readily and patriotically offer their services for that purpose.

I have always been proud of my profession—I glory in it now.

656 Spitzer Building.

MODERN INDUSTRIAL MEDICINE*

C. G. FARNUM, M.D.
PEORIA, ILL.

Industrial medicine, in its modern acceptance, is a new field of endeavor. Within the past half decade we have seen it develop from a discredited branch to one deserving and receiving the highest respect and recognition. We have, during this time, seen the day of the old-time company physician pass and the day of the modern, highly trained, industrial medical specialist arrive.

This transition has been so rapid, the growth so wonderful, and its establishment so speedy, that the term modern industrial medicine does not mean industrial medicine as it was practiced a year or two ago. Our ideals of yesterday are obsolete today, and we have vision and faith to believe that our dreams of today will be realized tomorrow.

It is only a few years ago that there came on the industrial horizon a few physicians of a new type. These men possessed foresight. They had a perspective of life. They had courage. They saw more to industrial medicine than the dressing of wounds and the reduction of fractures. It was they who first lost sight of the mass and saw the individual.

It has been this fundamental principle of the value of the human, applied honestly and justly by these men of high ideals and clear vision, that has raised industrial medicine out of the rut of the commonplace and has put it in its present exalted position, where it represents the very essence of human conservation and stands out as one of the greatest contributions of the present generation to civilization.

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* Read before the joint meeting of the Section on Preventive Medicine and Public Health and the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Medical men are more or less familiar with the work of a well organized department of medical supervision in a modern industrial plant. They know its scope and its modus operandi, but there is one particular phase of that work that I should like to emphasize at this time for clearly obvious reasons. Every applicant is given a complete and painstaking physical examination before he begins work in the plant, and the labor he is asked to perform is largely influenced by the physical findings in his individual case.

The number of physically perfect specimens is not great in normal times, and with the withdrawal from industry of large numbers of men for military service, the physically perfect ones are becoming fewer each month. This matter of physical defects has been emphasized for some years by industrial medical men and has been very strikingly reemphasized by the recent draft examinations. Therefore, since the bulk of the work in the industries is and has been done by men of greater or less degree of physical deficiency, how important it becomes that each worker shall be placed at work compatible with his physical condition in order that he may be able to utilize to its utmost the talent he possesses, and that his days of productivity shall not be shortened!

In these days of industrial stress, when every energy is strained for the realization of adequate war export surplus production, this is vitally important. We are facing the twofold problem of the need of greatly increased production with a greatly decreased number of producers, most of whom are defective.

Conservation is the slogan of the day, and we men of industrial medicine are clamoring for the conservation of the worker. We cry out against the wanton wastefulness of the old days and the old methods. We break boldly with the false philosophy of burning the candle at both ends and of tossing the burned-out remnant aside when it is no longer useful. We maintain that every man who is not a menace to his fellow workers by contagion is capable of doing some work safely and of doing it well. Our task is to get the man and the job mated up. This, then, is the work of the department of medical supervision and its correlated departments of employment, safety and welfare.

I have walked through industrial plants and in an hour have seen a hundred jobs filled by apparently able-bodied men, which could have been done equally well by a cripple or a defective. And the same day the employment department of that plant was refusing employment to the very cripples who could have done that work. Is that industrial conservation? Is it strange that the so-called irreducible minimum of unemployment is still so large?

In our plant, the superintendent of safety has but one leg and by that very token is more valuable as a safety man than if he had two legs. Recently eight men came into my office at one time for examinations. One was minus an arm, two were each minus one leg, and one was minus both feet. Did we utilize them? We certainly did, and these men are doing the work they were given to do as efficiently and are receiving the same wage for it as though they possessed all their extremities.

In a really modern industrial plant, where the department of medical supervision is worthy of the name and where the safety engineer and the superintendent of employment are alive to modern needs, the individual jobs are classified and indexed as to availability for physical defectives. How simple the whole procedure then becomes! What matters it how many arms, or legs, or eyes, or ankylosed joints a man chances to possess?

I need not go further into this problem. Its scope and application are obvious. But the men must be constantly watched, frequently reexamined, unceasingly supervised.

Some of us have statistics concerning a period of years that bring out two striking facts in connection with this work: first, that the labor turnover varies inversely as the physical defects of the laborer, and second, that the worse the physical defect, the less the accident incidence. These statistics may be considered the measure of the physical and mental compatability of the man with his job.

Of late we have heard much of the problems of the returned crippled soldier, of what can be done with him, of how he is to be reestablished in industry and society. The men of modern industrial medicine believe that they have contributed much to the solution of this problem of the crippled soldier. The Army officials have accepted the responsibility for his reconstruction and education. His reestablishment in the industrial world lies in the hands of the industrial medical men and the industries they represent. Their plan has been developed and in some of the plants has been in active use for a few years. They have proved its worth among industrial defectives and are ready for the added task of the war cripple. The industries in which this work is being done are waiting to prove their capacity and those plants in which such work is not done must be modernized.

This, then, is the thing for which industrial medical men ask: the safe utilization of all workers, the conservation of the energy and strength of every worker. We must have it, if the reduced and defective army in the industries is to maintain our growing army overseas.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SELBY AND FARNUM

Dr. J. W. Schereschewsky, Washington, D. C.: The point Dr. Farnum made, that it is necessary to utilize all sources of man power, is one that should be impressed on the mind of the managers of all industrial plants. In the past, owing to the provisions of our compensation laws, we have used the method of medical examination as a selective process by which we could induct into the industry those best fitted, from a physical standpoint, to yield the largest return from a production standpoint on the wages they earned. As in many other cases, we have gone on the supposition that the most perfect physical specimen was necessarily the most efficient man. When we proceed on these premises we lose sight of the fact that we create from those who suffer from one physical defect or another a special class, against whom we discriminate. Although one possess a defect, that fact need not affect adversely his ability to produce. Certainly, a man who has lost a leg may not have his physique impaired thereby. His digestive apparatus and vascular system may still be far superior to that of one who possesses all his limbs When we refuse employment to such men we disregard a source of potential energy which might be used to great advantage in industry. We thus omit an important way by which our labor forces can be made much more effective than they have been in the past. I cannot commend too greatly the necessity of utilizing to the fullest extent, no matter what their physical impairment, all the men we can.

Dr. Selby has given us a most comprehensive résumé of the problem which confronts the profession in conserving the man power of the nation and the means by which this can be carried out effectively. I agree with him that in the medical profession there are two things essential to winning the war. The first is the care of the military forces. Like Dr. Selby, I cannot too greatly express my pride in the way the medical men of the nation have responded to the call for that service. But behind that, is the conservation of the industrial group of the population. There, too, is a field in which the medical profession can give its services toward the increasing of efficiency, and it is at present freely doing so. It is only right that the industrial physician should receive from the medical profession and the public a proper recognition of their services.

Dr. Charles G. Farnum, Peoria, Ill.: There used to be talk of the number of rejections that we make among the applicants for the work. In some cases, these rejections ran over 18 per cent. When a man tells me that he rejects 18 per cent. of all applicants, I know he is doing poor work. He has not classified the work of his industry so as to utilize the men. You cannot take men with smallpox, malignant syphilis or tuberculosis, of course; but you cannot classify these men as on the labor market. They belong in an isolation hospital. Yet with these cases included, our rejections run much less than 1 per cent. If they run higher, your jobs are not classified as they ought to be; because practically every man is able to do some job safely and correctly. How many plants will put an epileptic to work? Yet places can be made even for epileptics.

I should like to bring out again forcibly the two points I made in this paper: The importance of a careful physical examination, and the importance of an improved classification of the jobs, in order to get the man and the job together.

Dr. Clarence D. Selby, Toledo, Ohio: The obligation of the profession toward the industrial man power is not alone the obligation of the industrial physician, but of the orthopedist as well. That was my object in reading the paper. The accidents that occur in the industries can be influenced materially by the adaptation of orthopedics to the care of the men injured. The specialists and all of the medical profession have obligations toward the industrial life. The health officer, which I have been, has the best opportunity of all to reach the productive masses over which he has authority; and the health of the community and the activities in the industry are essential to maintaining the man power and creating a new industrial man power. Those engaged in child welfare work also have wonderful opportunities.

Vaccination Against Smallpox and Typhoid Fever.—The Secretary of the Treasury Department recently issued the following notice to persons in charge of establishments manufacturing war materials: From the standpoint of health conservation and labor efficiency, it is imperative that such communicable diseases as smallpox and typhoid fever be prevented in all establishments manufacturing materials for the federal government. This is of special importance at the present time in view of the constant movement of labor from one locality to another, which facilitates so greatly the spread of disease. The experience of every civilized country shows that complete protection is furnished against smallpox by vaccination, and temporary immunity against typhoid by inoculation with typhoid vaccine. In order to prevent such diseases, on the recommendation of the Surgeon-General of the United States Public Health Service, persons in charge of plants engaged in the manufacture of war materials are urged to require every person employed under them to be vaccinated against smallpox and inoculated against typhoid fever, as now done in the case of our military forces. The need for them has already been demonstrated by the occurrence of isolated outbreaks of smallpox in establishments engaged in the production of war materials through imported labor. The Public Health Service is ready to cooperate in enforcing these measures, and any persons calling at any of the service stations will, on request, be vaccinated against smallpox or typhoid fever free of cost.

DIAGNOSIS IN TRAUMATIC NEUROSIS*

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SAN FRANCISCO

Opinions regarding the outlook for recovery in accident neuroses, commonly known as "traumatic neuroses," vary widely by the writers on this subject. Formerly this question of prognosis was studied in the subsequent medical history of persons injured in railway accidents, and afterward developing a neurosis. In this connection, the often quoted and striking statistics of Braun are interesting. This investigator studied the relative frequency of the neuroses following railway accidents in the ten years preceding and the ten years following the Austrian accident insurance law of 1895. Whereas in the period preceding the enactment of the law no case of disability was noted attributable to a purely nervous state, in the ten years following forty-six such cases were observed. From this investigation, traumatic neurosis and accident compensation appeared to be very intimately related. Pearce Bailey[1] cites Page, who studied the proportion of recoveries in 234 persons injured on the London and Northwestern Railway and found that considerably more than one half of the patients recovered eventually, although recovery was often delayed. His inquiries were made in the larger number of cases after two years' time following the accident. Bailey himself intended to investigate the prognosis in railway accidents on American railways, but found the plan impracticable. In another communication of this writer,[2] eight cases of traumatic hysteria were studied from the standpoint of prognosis and based on the subsequent history of these cases. Rumpf and Horn[3] at a later period (1912) on the continent reported the outcome of 136 cases of railway accident neuroses, where compensation had been settled on a cash basis. Seventy per cent. of these were cured; 16 per cent. improved. Contrasted with this type of compensation, the pension method in 172 cases quoted from Stursberg showed 25.5 per cent. cured or improved. These authors classify the accident neuroses by etiologic considerations, and speak of direct and indirect causes corresponding to primary and secondary neuroses. To the primary neuroses belong the fright neuroses, the shock neuroses, the local neuroses, the neuroses following general shock commotion, and those due to combined effects. To the secondary neuroses belong the manifold causes and manifestations growing out of the struggle for a pension, and other psychic influences, not necessarily dependent on trauma. The prognosis is considered in relation to the different primary group forms for recovery and duration of disease; also in relation to the physical condition and to a neurotic disposition previously existing.

The prognosis as regards industrial disability is attempted from the purely clinical standpoint by Paul Schuster (Lewandowsky's system). The following types are classified: (1) simple neurasthenic type, disability, 25 per cent. or less; (2) neurasthenic type, with prominent spinal symptomatology, disability from 40 to 75 per cent.; (3) hysterical type with contractures, disability in the neighborhood of 50 per cent.; (4) type of neuroses occurring in psychic constitutional inferiority (psychopaths, mental defectives), disability complete or very resistant to treatment; (5) vasomotor type, disability 33.5 per cent.; (6) tremor type, disability in serious forms (pseudospastic paresis), complete or 75 per cent. impaired; (7) type with outstanding psychic depression, in severe forms, disability complete; (8) hypochondriacal querulous type, disability in severe cases complete, especially when based on desire of compensation. In such cases, compensation has been denied by legal decision.[4]

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Bailey, Pearce: Diseases of the Nervous System Resulting from Accident and Injury, New York, D. Appleton & Co., 1908.

[2] Bailey, Pearce: The Prognosis of Traumatic Hysteria, etc., Med. Rec., Aug. 24, 1901.

[3] Rumpf and Horn: Sechste Jahresversammulung der Gesellschaft, Deutscher Nervenarzte, Ztschr. f. Nervenh., 1912, 358.

Naegeli,[5] in Switzerland, reviewing the recent literature regarding the prognosis of traumatic neurosis discerns a tendency toward an unfavorable outlook (Kraus, Aschaffenburg, Bruns, Huguenin). His own investigation (138 cases) shows a most favorable outlook for recovery after settlement of compensation. In fact, Naegeli has not observed a case of pure traumatic neurosis of persisting, serious, industrial disability in an uncomplicated traumatic neurosis, and without denying the possibility of such cases, challenges his colleagues to produce such cases.

Dercum,[6] in studying the outcome of a series of litigated cases after settlement, emphasizes the rapidity of recovery after monetary adjustment of their claims. He speaks of "indecent haste" of their restoration. Mayer,[7] in an excellent discussion of the subject of traumatic neurosis, in the chapter on "Incidence and Recoverability," reviews important recent opinions regarding outlook for recovery. Zenner[8] quotes Putnam (25 per cent. or less invalided); Knapp (improvement in not more than half of cases).

The American literature dealing with the question of recoverability is quite sparse. The importance of this aspect and the considerations which determine it are evident, particularly at this time. Industrial insurance and compensation is in effect in many of the states and will ultimately extend to all of them. The war psychoneuroses known as shell shock, which are essentially a group under this heading, must receive attention and disposition in increasing numbers. With the return of our sick and wounded soldiers, there will be many claims for pensions in those suffering from functional nervous disorders, and it is in these cases that secondary neuroses are particularly prone to develop by reason of the ready sympathy for the disabled man who has served his country and the suggestion of the very term shell shock interpreted to mean something akin to physical shock. Colonel Colin Russell of the Canadian Medical Department has recently stated that soldiers returned from the front with so-called "shell shock" bear a diagnosis of "nervousness — sick," "nervousness — wounded." It is, therefore, urgent that inquiry be made as to the final outcome in such cases of accident neuroses that are available at present for investigation. With these points in view, as referee medical examiner for the Industrial Accident Commission of California, I recommended that a study be made of the subsequent course of all industrial accident neuroses which had occurred since the enactment of the California Compensation Act, Jan. 1, 1914. Through the efforts of C. B. Hensley, statistician of the commission, a special agent was appointed and started his investigation of these cases in June, 1917, continuing until April 1, 1918. During the months of July, August, September and October, 1917, this special agent, G. F. Helsley, a senior medical student of the Stanford University Medical School, especially selected for this work, was able to investigate fifty cases out of a total of 105 in the records of the commission and from my own personal records. In all but four of these fifty cases, the patients were personally seen (the four being communicated with by writing), and in all but two of them the factor of recompense for disability was present. It is due to the accurate and conscientious work of Helsley that this thorough investigation was made possible. Six thousand miles were covered, mostly in automobile, from Eureka to Los Angeles. Of these fifty cases, thirty-four have been previously personally examined and diagnosed by the writer. The complete records of these cases and other details not mentioned in this article may be found in the graduation thesis of G. F. Helsley, Stanford University Medical School, Lane Library, 1918, "Prognosis of Traumatic Neurosis." Each case history was abstracted after the following form:

Name of injured. Address. Sex. Age. Nationality. Married. Wage. Occupation. Employer. Date of Accident. Causes of Accident and Injury (objective). Indirect causes (subjective). Nature of injury. Status of injured immediately following injury. Symptoms of neurosis and onset of same. Disability resulting from injury. Improvement and decline. Medical or surgical treatment. Attitude of injured toward treatment. General examination. Special neurologic examination.

On a separate form, the results of the investigation were made in the character of a questionnaire:

A. Name, date.
B. Complete outline.

Dependents: Nature and amount of compensation; insurance payments promptly made? Is compensation or settlement satisfactory? Present medical treatment; was former treatment satisfactory? Employed now? If idle, why? Present occupation, wage, employer? Detail course of disability, with jobs held, wage, etc. How is money need? Belief of seriousness of trauma. Unfavorable suggestion by relatives and friends. General environment. Evidence of simulation or exaggeration. Psychic status of patient; cheerful or depressed. Detail present condition in reference to previous examinations. Photos taken. Permission to publish.

From the foregoing records a table was compiled with reference to cases recovered, cases industrially rehabilitated—able to resume work satisfactorily, but still troubled by symptoms of neurosis—definitely improved, but not yet restored to usual earning power, and cases not improved. Under these headings a percentage was figured on an analysis of the different factors having an influence on the establishment and continuation of the disease. These were age, sex, character of original injury, number and nature of symptoms, clinical classification, predominant mood, residual organic lesions, unfavorable environment, unfavorable suggestion, fixed ideas and nature of compensation—whether periodic payments or final settlement. Finally, a consideration of the entire series was made in reference to average, minimum and maximum time between injury and investigation; average time from injury and recovery from symptoms; from injury till return to work, and from final settlement till return to work. A study of the accompanying table will enable the reader to more clearly follow the opinions and conclusions deduced from this study. Although this series of cases is not a large one, yet in my opinion the investigation is of distinct value. Etiologic considerations and clinical types are considered in this table in their general aspects only, as it was not thought advisable to further complicate the table by an analysis of the initial injury respecting emotion (fright) and bodily injury, which later factor might be further subdivided into bodily traumata of different sorts, leaving in their wake, after recovery from somatic symptoms, suggestion by psychic fixation, which would lead to the definite establishment and perpetuation of the different types of neurosis. Also, primary and secondary neuroses were not definitely separated but indicated in the general headings of unfavorable environment, unfavorable suggestion and the all important consideration of wish fulfilment regarding compensation. The foregoing considerations would justify the opinion that a study of the individual case by a person or persons experienced in these cases is necessary to an exact prognosis, if at all possible. However, from the practical standpoint it seems imperative that we must in some way classify and attempt to fix the probable duration of disability in cases of neuroses at their onset for the benefit of not alone the insurance carrier, but also from other economic reasons, and particularly from the standpoint of the benefit to the patient himself. Although the question of simulation deals particularly with diagnosis, it may be here stated that we have found frank simulation a rare condition, although exaggeration not infrequent.

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[4] Schuster, Paul: Handbuch der Neurologie, 5, Spez. Neurologies, IV, p. 1105.

[5] Naegeli: Cor.-Bl. f. Schweiz. Aerzte, 1910, **40**, 33.

[6] Dercum, F. X.: Hysteria and Accident Compensation, Philadelphia, G. T. Bisel, 1916.

[7] Mayer, E. E.: The Traumatic Neuroses, The Journal A. M. A., Sept. 22, 1917, p. 958.

[8] Zenner, Philip: Traumatic Neurosis, The Journal A. M. A., April 13, 1907, p. 1260.

PROGNOSIS OF TRAUMATIC NEUROSIS

	Number of Cases	Satisfactory Recovery, per Cent.	Industrial Rehabilitation (Able to Resume Work Satisfactorily, but Still Troubled by Symptoms of Neurosis), per Cent.	Definitely Improved but Not Yet Restored to Usual *Earning* Power, per Cent.	Not Improved, per Cent.
Entire series	50	14	26	36	24
Under 30 years of age	12	0	42	58	0
From 30 to 50 years of age	23	22	22	22	34
Over 50 years of age	15	13	20	40	27
Male	42	17	19	36	28
Female	8	0	62.5	37.5	0
Original injury negligible or mild	12	8	33.5	25	33.5
Original injury severe	28	21.5	28.5	36	14
Symptoms few, closely related	18	16.5	16.5	41.5	22.5
Symptoms many, widely variant	30	13	30	30	27
Symptoms of neurosis, diagnosed "hysteria"	28	7	18	39	36
Symptoms of neurosis, diagnosed "neurasthenia"	22	23	36	32	9
Psychic status cheerful	18	28	50	22	0
Psychic status depressed	28	0	11	46	43
Residual organic lesion present	19	5	26	32	37
Residual organic lesion not present	23	22	35	30	13
Unfavorable environment or suggestion	23	4	35	35	26
Confirmed belief of seriousness of injury and disability, improper treatment, unfair settlement	34	9	14.5	44	32.5
Nature of Settlement:					
[illegible] ter- [illegible]	14	7	21.5	28.5	43
[illegible] mo. lump sum settlement	10	30	10	50	10
Periodic payments for defined period, now ended	13	0	54	38	8
Periodic payments for defined period not yet ended, but injured man may resume work	4	0	0	0	100
Early lump sum settlement	6	33⅓	33⅓	33⅓	0
Entire series	50	Mo.	Mo.	Mo.	Mo.
Average time between injury and investigation	..	21	24	25	27
Maximum time between injury and investigation	..	39	37	41	45
Minimum time between injury and investigation	..	7	7	12	9
Average time elapsed between injury and recovery from symptoms of neurosis	4	11			
Average time from injury till return to work	..	6 cases 11	10 cases 8	7 cases 18	
Average time from injury till return to work *for all cases*, where known, 11.8 mo.	23				
Average time from final settlement till return to work	..	4 cases 7	4 cases 9	5 cases 4½	
Average time from final settlement *till return to work* for all cases, where known, 6.7 mo.	13				

The following comment may be made in an analysis of the tabulations:

Entire Series: Seven cases (14 per cent.) show satisfactory recovery; thirteen cases (26 per cent.) are industrially rehabilitated, although still somewhat complaining of their symptoms; eighteen cases (36 per cent.) definitely improved; twelve cases (24 per cent.) not improved. Or, 40 per cent. show complete restoration or earning power.

Age: Age is apparently unimportant, but it is to be remarked that of the twelve cases of under 30 years of age, no one case has recovered completely.

Sex: Although the women show a greater tendency to partial recovery, not one is entirely relieved of symptoms.

Original Injury, Character of: The severity of the original injury apparently bears no relation to the outlook for recovery. In fact, in those whose injury was classed as severe, more have been restored to industrial efficiency than those classed as mild cases.

Symptomatology: An attempt has been made to divide the cases into major groups of hysteria and neurasthenia, although often there is a mixed condition present. Those cases, however, showing predominantly hysterical symptoms, show a much more unfavorable prognosis compared with the neurasthenics, or compared to the total series.

Psychic State: The cheerful patients as compared with the depressed ones show a marked contrast in the percentages of complete and partial recovery in favor of the cheerful cases; conversely, a large percentage of unimproved cases (43 per cent.) in the depressed. In the unrecovered patients, the psychic condition may be logically assumed to be one of depression, but the psychic status was considered at the first *examination, when obtainable.*

Residual Organic Lesion: Visible effects of injury, such as scars, bony deformities and deficiency of soft parts influence the outlook *unfavorably, as is clearly shown in the table.*

Unfavorable Suggestion; Discontent: Confirmed belief of the seriousness of the injury and disability, improper treatment and unfair settlement usually appear *in the* same case. In thirty-four such cases the percentage *of recovery* for work is quite small, 235 per cent. The reason for this state of mind is not always due to unfavorable *environment or* suggestion, in the usual surroundings of the patient, including solicitous and sympathetic friends and relatives, but may be due in far greater measure to a mistaken diagnosis and direct suggestion of serious and perhaps permanent disability from the attending physician; *improper* treatment due to a mistake in diagnosis, the condition being considered *organic and* treated as such; or, indeed, no treatment at all, as patient *is* referred *from one physician to another for opinion* incidental to ratings, etc. Finally, compensation, while not being *denied*, is withheld pending a rating, or for other reasons and the patient, a wage earner in need of *the necessities* of life, becomes discouraged and believes himself a *victim of* unfair treatment. Or depressed and fearful that by *resuming* work he will aggravate his condition and be unable to continue, thereby losing compensation, he is either unwilling to begin or is soon discouraged by his hypochondriacal symptoms. This group is in striking contrast in percentage of recoveries to that of the cheerful psychic group.

Nature of Settlement: Of all the factors which enter into the course and duration of the accident neuroses, the question of compensation is one of the most important, and its great psychic influence in a considerable proportion of cases cannot be denied. There is almost a consensus of opinion that in the mental make-up of certain persons an accident neurosis may be unfavorably influenced, even perpetuated and aggravated by the pension system. However, that this is not true in all cases is seen in an analysis of fourteen cases, in which the patients received payments until termination of disability, three recovering industrially under the periodic payment plan. On the other hand, six patients out of the fourteen were not improved, which confirms the original contention. The cases showing lump sum settlement proved the most favorable for recovery, early lump sum settlement (six cases) being more favorable than in those cases (ten) where the patients had received periodic payments and a final lump sum settlement. As regards the question of compensation in general, it may be stated that in the group of patients showing industrial rehabilitation, but still presenting some symptoms of neurosis, classifying these cases as undoubtedly accident neuroses there were two patients not receiving nor having received industrial compensation.

Duration:

(a) Between injury and investigation: In the entire series of fifty cases, the lapse of time was about two years on an average, in the different headings, as regards progress. The longest period was three years and nine months; the shortest, seven months.

(b) Between injury and recovery from symptoms of neurosis: In all only four cases were available, and the average of these was eleven months.

(c) Between injury and return to work: Average time for all cases (twenty-three) where known was 11.8 months. For various reasons, this time could not be set in a number of cases.

(d) Between final settlement and return to work: Average time for all cases (thirteen) where known was 6.7 months. In these cases, however, the average total disability was 15.8 months.

The following abstracts are from illustrative cases in the series.

Case of Complete Recovery Following Early Lump Sum Settlement.—S. O., man, aged 40, a machine worker, making $21 a week, was injured Oct. 16, 1916, when a staging gave way, so that he fell 70 feet down a steep slope. He received several scalp wounds and probably had a concussion of the brain; in addition, he had contusions of the body, both shoulders and the left ankle. He was unconscious for several hours after the accident. On examination by a neurologist, Dec. 1, 1916, he complained of the following symptoms: dizziness on stooping over and when lying down; continual pain in the head and neck; insomnia; excess of sweating, and weakness of the left foot and ankle. He was noticed to be well developed and well nourished. His hand grips registered by dynamometer: right, 28 kg.; left, 24 kg. The only findings were slight tenderness in the left parietal region on percussion and deafness in the right ear, which, however, had been present from childhood. The diagnosis of traumatic neurosis was made, and a complete recovery was predicted within one month. Final settlement was made the injured man, Dec. 26, 1916, when he was awarded $49.78 as full compensation. Frequent letters from him during the early part of 1917 indicated that the neurosis still continued. At one time, he reported increasing disability from pain in the neck. When seen by the investigator, Sept. 23, 1917, he had resumed his former employment. After his accident and until February 1, he was employed as a watchman at the mine and, thereafter, until April 1, he did easy work on the hoist. Since April 1 he had been doing machine work at his previous wage, $3.50 a day. He stated that the increase of pain in neck, which he had reported, was temporary only, and since that time all his symptoms had gradually improved. His dizziness was gone early in the spring of 1917; he suffered no more trouble from sleeplessness, and there was no tenderness in his head. He still had occasional pain in his neck of slight degree and short duration, and his left ankle was still a little weak. Dynamometer readings of his hand grips were: right, 51; left, 47. It was evident that the traumatic neurosis was, for all practical purposes, cured.

Case of Complete Recovery Following Final Lump Sum Settlement.—B. W. J., man, aged 37, an iron worker, making $27.50 a week, was injured Oct. 7, 1915. He stumbled into a hole 2 feet 4 inches deep and was struck several times in the back by one end of a 200 pound steel bar, which he had been helping another man to carry. His body was bent over the side of the hole. The exact nature of the injury which he received is questionable. On roentgen-ray examination, there was evidence of a fracture of the tip of the transverse process on the right side of the first lumbar vertebra, with a displacement of the fragment. There was also possibly a subluxation of the right sacro-iliac joint. Immediately after the injury, this man was unable to walk unsupported, and complained of great pain in his back. When seen by the neurologist, Sept. 19, 1916, he complained of the following symptoms: pain in the lumbar region and in the back of the neck, increasing after walking, so that he has great difficulty in getting around; impairment of vision in the left eye; general nervousness and tremor; sleeplessness; a quivering sensation in the upper abdomen; dizziness on stooping over; loss of weight and loss of appetite. On examination, the injured man was found to be a well built, well nourished man. There was tenderness over the lower lumbar and upper sacral spine and at the right sacro-iliac joint. There was limitation of movement at the hip, especially the right, and in walking the right leg was favored. Excessive perspiration was noted. The hands and feet were cold and cyanotic. The fingers trembled, especially those of the right hand. Deep reflexes were overactive. There was distinct muscular incoordination. Diminution of sensibility was present in the right leg below the hip, of the hysterical segmental type. His hand grips registered: right, 40 kg.; left, 39 kg. Diagnosis of traumatic neurosis was made, with prognosis of disabilty of indefinite duration. The patient had an exaggerated idea of the seriousness of the injury which he had suffered. He criticized very severely some of the treatment which he had received, and blamed his condition partly to that cause. He had a wife and two sons to look out for. His wife took a more serious view of his condition than did the patient himself and did not believe that he would ever be able to work.

Compensation was allowed for temporary total disability from the date of the accident until Oct. 6, 1916, when a lump sum settlement of $1,995.49 was made. Previous to this lump sum, the injured man had received $937.50, making total $2,932.99. When first seen by the investigator, June 16, 1917, he was working as foreman on iron construction work at $36 a week. He had started to work April 1, 1917. He still complained of some pain in the right lumbar region and stated that his eyes bothered him, so that he wore dark glasses in the bright sun. He also suffered occasionally from sleeplessness. His other symptoms seemed to have been entirely relieved. All his severe pain had gone by February, 1917. His gait was normal. He seemed to be of distinctly nervous disposition. A slight tremor was still present in the extended fingers. Otherwise, the examination was negative, except for slightly overactive deep reflexes. The dynamometer readings registered: right, 57 kg.; left, 58 kg. The injured man stated that he was unable to do the heaviest work in connection with his employment, but when observed two months later at construction work, it was evident that he was probably the most active man on the job. At this time, he stated that his disability had practically ceased, and that he felt as good as ever. He passed the army physical examinations and was enrolled in the Second Reserve Officers' Training Camp at the San Francisco Presidio, during the fall of 1917. He was, however, discharged from the camp Nov. 20, 1917, the cause being unknown. This man's recovery from his injury was apparently complete, following within a few months of the lump sum settlement made him.

Case Unimproved, with Industrial Disability Complete After Final Lump Sum Settlement.—B. F., man, aged 35, a laborer, earning $17.50 a week, was injured June 7, 1915, by being struck on the right elbow by a heavy timber, as he was holding on to another timber with his right hand. He thereby suffered a fracture of the second right metacarpal bone at the proximal end and contusions of the right elbow. The injured limb was put up in a cast and, on removal of same, a tremor developed. Associated with this, the injured man complained of pain in the arm like a "severe electric shock," which was especially bad in the forearm and radiated to the ends of the fingers. There was great impairment of strength in the right hand. He was very much depressed over what he considered to be an extremely serious injury, which he had suffered in the right arm. He thought that his elbow was very badly damaged, although roentgen-ray examination showed absolutely nothing abnormal. There was some residual deformity of the right wrist, as a result of the fractured metacarpal bone. A wife and two young children depended on him for support. On March 13, 1916, in order to dispose of the case, a rating was made of partial permanent disability to the extent of 33½ per cent., for which the injured man was to receive compensation at the rate of $9.38 a week for 134 weeks. In order to enable him to start business on a leased poultry ranch, a final lump sum settlement was made him, Dec. 8, 1916, amounting to $480.10, which represented commutation for all the payments not yet due. The injured man claimed later that he did not understand that this was the termination of his compensation, and he was thoroughly convinced that he had been cheated. He was seen by the investigator, Jan. 21, 1918. At this time, he was in no employment and reported that the poultry ranch which he had undertaken had proved a failure. A well marked coarse tremor of the right upper extremity was noted, not limited to any special muscles. By distracting his attention, the tremor stopped. On attempting muscular effort, the tremor was greatly exaggerated. The hand grips registered: right, 8 kg.; left, 37 kg. The subjective sensations in the right arm were as above described. The great increase of pain and tremor, whenever he tried to do any work, prevented him from resuming any occupation. He stated that his arm is a little better than it was a year previously, but any improvement must have been very slight. He also stated that he was entirely destitute and without any income. Three treatments by hydrotherapy were applied to his right forearm and hand at the Stanford University Clinic, but no improvement was noted in his condition.

Case of Complete Recovery Under Periodic Payments (Pension) Until Termination of Disability.—C. L., man, aged 54, a teamster, making $21 a week, was injured June 18, 1915. As he was pulling on a barrel with a hook the stave broke, and his right arm was thrown backward. He suffered a sprain at the shoulder joint. He was seen by a neurologist Sept. 21, 1915, after the examining surgeon had found no evidence of local trouble in the shoulder joint. At this time he complained of pain in the right shoulder on movement; inability to elevate the arm to more than 75 degrees, and weakness of the right arm at the shoulder. Examination found weakness of some of the muscles of the right arm. The dynamometer readings were: right, 36 kg.; left, 40 kg. There was some pain in the shoulder joint, on passive motion. Voluntary motion in the effort to elevate the affected extremity was attempted in a bizarre fashion. He had become irritable of late. He had been told by a physician who had previously examined him that he had received a serious organic injury to the affected shoulder. The electric reactions of the muscles were normal, and a diagnosis of traumatic neurosis was made, with a possibility of simulation; neuritis, or bursitis was not considered to be present. This man thought his injury was much more serious than it actually was. He believed all the cords and muscles about his shoulder were torn. A dependent family added to his worries. He received compensation for total disability until he returned to work, the final payment being made him Oct. 2, 1915. When seen by the investigator, June 17, 1917, he reported that he had resumed his former employment at part wages, Sept. 30, 1915. He is still holding the same job at a better wage than he was getting when hurt. He was very cheerful and reported his general condition to be entirely recovered. He "felt good," but had some trouble in his right shoulder, especially in cold weather. However, the movements of this shoulder were normal. His hand grip registered: right, 44 kg.; left, 41 kg.

Case of Industrial Recovery Under Periodic Payments (Pension) Until Termination of Disability.—W. P. L., woman, aged 17, an apprentice stock clerk, earning $20 a month, was injured Nov. 3, 1916. She fell from a shelf, on which she was standing, to the floor, striking her head. She thereby suffered contusion of the scalp on the right side. She was unconscious for a few minutes following the injury and afterward was dazed, complaining of pain in her head. She had to be taken home in a taxicab. When seen by the neurologist, Dec. 9, 1916, she complained of the following symptoms: pain in her head when she tried to work or use her eyes; dizziness, especially when standing up; loss of appetite; sleeplessness; loss of weight; nervousness; easy fatigue. On examination it was noted that her extremities were cold. There was excessive perspiration. The extended fingers showed a coarse tremor and the tendon reflexes were overactive. A diagnosis of traumatic neurosis was recorded, with a prognosis of disability of indefinite duration, probably from four to six months. This girl was not especially depressed over her condition, although she did feel that the nervousness which resulted from the accident would hinder her future success. While she had a pleasant home with her parents, nevertheless there is evidence that her symptoms were at least partially to be accounted for by suggestion on the part of her mother. The injured girl was allowed compensation for the time that she was away from work, until she was able to return, a total being paid her of $27.40. When seen by the investigator, June 15, 1917, she was in the same employ as when the accident occurred. She first attempted to work one month after the accident, but after a few days she discontinued work and remained absent until Jan. 15, 1917, since which time she has remained steadily at work at the same wage as before. She still suffers, however, from pain in her head and dizziness. Her fingers are still tremulous, and she states that she is very nervous. The coldness of the extremities and the excessive perspiration still remain. She appears to have regained normal weight and no longer suffers from loss of appetite. Although, on the whole, her symptoms were but slightly relieved, it appeared that they were not of sufficient severity to interfere with her usefulness.

Case Not Recovered Under Periodic Payments (Pension) Until Termination of Disability.—J. C., man, aged 36, painter, making $29 a week, was injured Sept. 24, 1914. As he was on his way to work carrying a ladder on his right shoulder, he slipped and fell on his left shoulder and back. He suffered a multiple fracture of the left scapula (spine, acromion process). In addition, there was evidence of injury to the spine in the lower cervical region. The injured man was seen by a neurologist, June 23, 1915. At that time he complained of the following symptoms: numbness of the right arm, especially in his hand on the ulnar side, and weakness and trembling of the right hand; pain in the left shoulder and back of the neck; nervousness; insomnia; loss of appetite; loss of weight (20 pounds), and change in disposition. On examination, the neurologist noted a fairly well nourished man, with a distinctly worried expression. A coarse tremor of the right arm, forearm, and hand was seen. When both hands were extended, tremor was noted in each. The dynamometer readings of hand grips were: right, 10.5 kg., left, 18.5 kg. Atrophy of the dorsal interosseous muscles of the right hand was noted. There was loss of sensation on the ulnar border of the hand and forearm, with complete loss of all sense of feeling below the cuff. Electric reaction indicated complete reaction of degeneration of the dorsal interosseous muscles of the right hand, with partial reaction of degeneration of the adductors and abductors of the thumb and the flexors of the little finger. The electric reaction indicated a definite injury to the nerves supplying the muscles, so that the neurologist diagnosed "traumatic radiculitis," "traumatic neurosis," the two separate conditions being both considered to be present. It was impossible to state whether the injury to the nerves or the traumatic neurosis was the main cause of the weakness of his hand. Oct. 6, 1915, the neurologist found the hand grips registered: right, 30 kg.; left, 30 kg. This man appeared to be very much depressed over his condition. He had present before his eyes a visible atrophy of certain muscles of his right hand, which tended to increase his belief in the seriousness of his condition. He realized that his injury was of his left side, but believed that the numbness had extended up through the nerves over to his right arm. He owned his own home and had only a wife dependent on him for support. Some of the physicians who attended him told him that the pain he felt in the back of his neck was due to an injury of the nerves. Aug. 28, 1915, he was allowed compensation from the time of his accident, of $17.81 a week, for temporary total disability. This compensation was to continue until the termination of the disability. The investigator found on his visit, June 17, 1917, that the injured man had not yet been able to do any work. He appeared, as before described, to be very much depressed. He stated that he now felt a numbness in his hand only. He still suffered from insomnia, nervousness and pain in the back of his head. His appetite was fair and his weight had improved. On examination, it was found that the tremor and weakness remained in his right hand. His extremities were cold, especially the right hand. A fairly well marked atrophy of the muscles, as before mentioned, still remained. The disturbance of sensibility consisted only of slight lessening of pain sense on the ulnar side of the right hand. The patient claimed loss of memory and mental deterioration. He was seen a second time by the investigator, Feb. 12, 1918. He stated that his condition was unimproved, except that he could move the fingers of his right hand better than he could before. He again complained bitterly of headache and insomnia, and stated that his memory was all gone. On examination, a tremor was noticed in the right hand as before. This was very slight when first seen, but increased markedly during the visit. There seemed to be distinctly less muscular atrophy of the right hand than at previous visit. The strength of the hand was improved. The injured man claimed, however, that he was still unable to hold a paint brush and had not resumed work. At a previous visit, he was unable to elevate his left arm, but this time he could bring same to horizontal, and the arm could be passively elevated to within 10 degrees of vertical. His memory was not as bad as he stated, as he remembered the previous visit of investigator, and that he had given a specimen of his handwriting. He also remembered the names of the men in the commission. He complained of some additional trouble at this visit: limitation of rotary movements of the neck, weakness of the spine and jerking and tremor of the legs. This latter was not observed by the investigator. In general, there has been distinct improvement in this man's condition, especially in the right hand, and there is evidence that his disability is due less to definite nerve injury than to traumatic neurosis.

Case Illustrating Persisting State of Neurosis Following an Industrial Accident in Which Compensation Was Not Claimed.—B. A., woman, aged 19, a clerk in a store, making $7 a week, was injured, May 12, 1915, by catching her fingers between the knives of a meat slicing machine, thereby losing the middle and ring fingers of her left (major) hand through the distal joint. The injured girl's permanent disability was rated as 4¾ per cent., which entitled her to nineteen weeks' compensation at $4.17 a week, making a total of $79.23. A visit was made by the investigator, Aug. 3, 1917, in the course of routine investigation of permanent injuries. The injured was then employed as manager of local telephone office at a salary of $35 per month. She had returned to her former employment six weeks after the accident, and worked for five months, but then had to quit on account of nervousness. After having been out of employment for six months, she worked for one month in the summer of 1916, at the telephone office. She was unable to continue this employment and was unable to work again until November, 1916, when she again worked two months at the telephone office. She again had to stop work on account of her general condition after two months, and remained away until April, 1917, since which time she has been steadily in the employment of the telephone company. In the two years which had elapsed since the injury, she had been out of work fourteen months. She still has to take an occasional rest from her work, but as manager of the office, she is able to arrange her work so that she can rest when she is feeling bad. She stated that while before the accident she was known as "the healthiest girl in M——," she had never felt entirely well since her injury. Her disposition has become irritable, so that she is very easily upset by the slightest annoyance. Physical weakness is present. She suffers from severe headaches at the back part of her head. Her fingers tremble sometimes to such an extent as to interfere with her work as telephone operator. She suffers from sleeplessness, so that a hypnotic drug is often necessary. She has suffered from a numb feeling of the entire left hand. She states that her general nervous condition is showing gradual improvement. Little was to be noticed on examination except general signs of nervousness, such as tremor of the fingers and excessive perspiration. She had never considered herself entitled to any further compensation, on account of the general disability which she had suffered in addition to the local injury. She further understood perfectly that it was entirely impossible for her to have an additional award, on account of the time which had elapsed.

CONCLUSIONS

1. Traumatic neurosis is a curable affection.

2. Of the psychic factors influencing the establishment and course of traumatic neurosis, compensation is one of the most important. That it is not the only factor, and that so-called "compensation neurosis" is not identical with traumatic neurosis is exemplified by cases here reported in which the patients recovered under the periodic payment system of compensation, and accident cases followed by a state of psychoneurosis were found to exist, in which compensation was not demanded or received.

3. Recoverability is favorably influenced by the following conditions: (*a*) if the patient is in a satisfactory environment and not subjected to unfavorable suggestion; (*b*) does not have a fixed belief that he has been seriously and permanently injured, that he has received improper medical or surgical treatment and cheated in settlement; (*c*) does not have an organic disfigurement or defect as result of the accident; (*d*) remains cheerful; (*e*) has symptoms of predominantly neurasthenic nature; (*f*) gets an early lump sum settlement.

4. The character of the original injury is of little importance in traumatic neurosis.

5. For a favorable hypothetic case as outlined above, a disability of considerably less than one year might be confidently expected. Added unfavorable factors affecting prognosis so complicate the outlook that a definite fixation of duration of disability may be impossible.

6. A case of traumatic neurosis existing over one year, with marked symptoms affecting earning capacity, is to be regarded as one in which there are serious psychic factors present unfavorable to recovery, and these factors should be investigated and, if possible, removed.

ABSTRACT OF DISCUSSION

Dr. Francis X. Dercum, Philadelphia: I would like to ask whether it is possible to make, and whether Dr. Schaller did make, investigation as to previous condition of these patients. It is a well known fact in connection with the accident neuroses that where numbers of persons are exposed to accident, only a certain percentage develop hysteria. Investigation also has shown that the latter reveal a previous neuropathic history in the great majority of cases. The accident merely offers an occasion for the renewed manifestation of preexisting nervous conditions. In regard to lump sum settlements, it is a remarkable fact that in Denmark where an early and lump sum payment is made in accordance with the findings of the physicians appointed to examine the case, something like 93 per cent. of cases return to work in a comparatively short period. Where payment is made monthly, as in Germany, where there is a system of pensions extending over years of time, these patients never get well. Therefore the methods of payment have a great deal to do with recovery.

Dr. Andrew L. Skoog, Kansas City, Mo.: Dr. Schaller's tables were interesting. The same question comes into my mind that Dr. Dercum inquired about. I have done a certain amount of work for corporations in investigating some of these litigation cases, and I have found a number in which there were preexisting neurotic evidences. Only recently I examined a woman who was run down by the investigators of the street car company who secured testimony of neighbors to the effect that this woman frequently and suddenly called in physicians because of these cerebral attacks, and yet she went on the witness-stand and denied that she had ever had any previous illnesses of this kind. I believe that in a certain number of these cases in which there is some mild injury, the neurotic elements are excited, and that accounts for a certain percentage of cases that do recover completely. It is undoubtedly true that it takes a neurotic disposition to produce a case of traumatic neurosis. It is sometimes also very difficult to distinguish between malingering and traumatic neurosis. A few years ago, in consultation on a case in which another man claimed that the patient was suffering from traumatic neurosis, I contended that the case was one of malingering. About two months afterward a settlement was made, when he recovered quickly. Shortly after this he began to quarrel with a woman about his share of the loot. This woman brought the patient to me and claimed she was his sister, but it developed that she was not a sister and that she was conducting the case, he being a worker for one of the stock yards companies.

Dr. Francis A. Ely, Des Moines, Iowa: One point which the essayist has shown most conclusively is the predominating psychic factor in all of these cases. I think, perhaps, all of us have recognized the relatively few cases in which actual physical trauma has been the essential etiologic factor, but the sum total of the evidence brought forth here, is distinctly in favor of the condition being due purely to an abnormal psychic state.

I have had two or three strikingly amusing circumstances brought out in connection with the remote history of some of these traumatic neuroses, in making life insurance examinations. In three or four instances I have examined for life insurance some years after, the individuals who had claimed permanent injury, and in getting my data, it was exceedingly amusing to note the manner in which the individual jumped from one side of the fence to the other. The curability of the cases, when it came to the point of getting the life insurance was exceedingly apparent, and the thought came to me at these times, that possibly it might be interesting to secure some data on this subject, from the standpoint of insurability. When you approach your applicants under conditions of this kind, you are almost sure to receive a positive answer in regard to whether or not they have recovered. The only difficulty is, that it drives the individual into a desperate corner, so far as his veracity is concerned.

Dr. Julius Grinker, Chicago: In the litigation cases one physician will testify that the case is one of ordinary neurosis on a hereditary tendency, because he is interested in finding neurotic symptoms of long standing for the side on which he is engaged; another physician, equally experienced, but with a preference for the other side, has failed to discover neurotic tendencies in the patient's previous life history. Both men are equally sincere, but one is for the plaintiff and the other for the defendant which means that their judgment is unconsciously leaning toward their employer's interest. If a man has been a neurotic by constitution and make-up, and has never shown it except after a trauma, the case is likely to be a traumatic neurosis, because many people have neurotic tendencies, but do not develop neuroses. Viewed in this light, the statement of Dr. Dercum that most cases of traumatic neuroses have shown a tendency to neurosis before the trauma, is not surprising. I have seen a number of cases of traumatic neuroses in those who have not shown signs of nervousness before a certain trauma has occurred, and I believe we must recognize those cases as true traumatic neuroses.

Dr. Edmund Jacobson, Chicago: Dr. Schaller has brought out statistics on a point which has a certain therapeutic value; and that is cheerfulness. The doctor's statistics have brought out that in a case of traumatic neurosis at least he has chanced to find that such patients as have conserved a pleasant attitude have on the whole recovered very much more quickly or more efficiently than the others—76 per cent., I believe, as compared with 11 per cent. So long as the patient can be kept cheerful, just so long are the various nervous symptoms kept in abeyance, and it is only when unpleasantness in the mental aspect arises that the symptoms become obnoxious. The sign in business offices, "Be Cheerful," draws attention to its importance, and perhaps at some future time it would not be too much to say that if one could keep neurotic patients cheerful a great proportion of them would be cured. A persistent cheerfulness is to a neurosis perhaps something of the same sort as iron is to anemia.

Dr. C. R. Ball, St. Paul: I wish to ask the essayist whether he noticed any difference, not only in the character of the symptoms present but as to course and prognosis, in those cases which develop the symptoms immediately after the accident, and those which manifest their symptoms two or three weeks or, perhaps, several months after the accident.

Dr. Elmer E. Southard, Boston: I think all the industrial accident people I have heard say anything about this matter feel about the lump sum settlement as Dr. Schaller does. I would like to ask Dr. Schaller how many nonneurotic cases there were during the period in which the neurotic cases were developing. We find that it is a neurasthenic problem of great breadth. The cases that are sent to us are of the most complex nature. I would also like to ask if the Wassermann tests have been of use in these cases. We have found a great number of subnormal persons whose prognoses depend perhaps on their ability to rationalize. Dr. Idler worked on this matter of nonemployment and found that the paranoiac, the feeble-minded, and the moody, up-and-down cases, were the big problems. I think it is the duty of every neurologist and psychiatrist to take as much as possible of the burden from industrial persons. I had occasion to talk with the head of a copper corporation which hired thirty-eight physicans to handle their cases, and he stated that none of them seemed to know anything about these conditions. If we can get our kind of work into industry we can do much; we can exclude a great many persons who are potential neurotics. So far as so-called shell shock is concerned, it is true that heredity counts, but it is also true that the perfect type of person might get shell shock, and this might be true of conditions arising from injury in industrial concerns. If we could apply the Wasserman test and exclude the positive type, the feebleminded and also the I. W. W., taking out all these potential neuropaths, the industries would boom.

Dr. G. A. Moleen, Denver: I am quite sure that some of the traumatic neuroses that find their way into the courts are not neuroses. They should be investigated pretty thoroughly. A case in point: A man fell from a car, was picked up unconscious, and later sued the company. After thorough investigation it was evident that he had had a capsular hemorrhage which was coincident with the stopping of the car, but the company was blamed for bringing about the hemiplegia. It is generally known that trauma or shock will bring about a confused state in a paretic who appears otherwise normal. Two such cases have come under my observation within the last year, one of them claiming a railroad injury and in whom many evidences of paresis were present. However, the mental symptoms were not present. He made a claim of permanent injury. Another man within two months made a claim for automobile injury in which definite evidences of paresis were found. It is a fact that those cases which have not recovered symptomatically and those which have pursued an unfavorable course give much encouragement to the lawyers who prosecute these cases. Therefore it is important for us to look into the true cases of injury and the true cases of disease which have been exaggerated by the accident.

Dr. Theodore Diller, Pittsburgh: These cases Dr. Moleen referred to are few indeed, for they could hardly escape recognition by subsequent observation. The studies in shell shock which are now being made by competent observers at the front are going to shed a great deal of light on this whole question. For instance, we are told by these observers that German prisoners seldom exhibit shock. We are told also that one of the best cures for shell shock among the allied soldiers is this: A prompt and positive assurance that the victim shall not go back into the trenches. This seems to me to point to the conclusion that self-interest, interest as regards the future, has a great deal to do with the whole thing. Is not that true also in these cases of so-called traumatic neurosis? Is it not a matter of self-interest and uncertainty as to the future? Certainly a great desideratum is prompt settlement in these cases, and companies should be protected by limitation of damages. It is a shame that these unlimited and outrageous amounts should be awarded so frequently in these cases of traumatic neurosis or litigation neurosis.

Dr. Ralph Reed, Cincinnati: I agree that there are certain subtle emotional factors that might be considered in these cases. It would be a matter of interest if the essayist could record the financial condition of these traumatic cases and the relative monetary importance of the possible settlement to the patient. If he is very poor, a small settlement looks large to him and, perhaps, tends to accentuate the results of the injury. I think also that general happiness or unhappiness in life has a great deal to do with the development of any type of neurosis. Therefore, it would be interesting to ask whether these patients who developed traumatic neurosis were happy prior to the development of neurosis, because, if not, the traumatism might possibly have acted merely as an influence to bring about an accentuation of the unhappy mental state that the patient had always suffered. Then there is the factor of revenge. I think many of these injured people have the feeling of wanting to be revenged against the company or the person from whom they feel they have received this injury. They look on their experience as justifying the attitude they have taken irrespective of the actual amount of the financial settlement.

We might consider this factor: The long dragging out of the case through the courts, the getting on the witness-stand, etc., helps to exalt the personality of a patient who otherwise may have been a very obscure individual; all this interest on the part of the physicians, the lawyers, the court and the friends, favors an actual exaltation of the personality of the plaintiff from which he derives a pleasure very definite and satisfying.

Dr. Meyer Solomon, Chicago: Most of the speakers assume the attitude apparently that suggestion has much to do with the symptoms that patients have in these cases. It seems to me that the view that the phenomena are due to suggestion does not apply at all to the cases that show prolonged sensorimotor symptoms—anesthesias, paralyses, the loss of sight and hearing, etc.,—that go on for weeks or months. I cannot conceive how simulation, suggestion, the power of ideas, can bring about a prolonged disturbance of the sensorimotor apparatus. Ideas, whether in the form of suggestion or simulation, may bring about temporary disturbance in the sensorimotor apparatus, but it seems to me an impossibility that ideational phenomena or manifestations may show themselves as really prolonged phenomena in the form of paralyses and anesthesias that go on for weeks, months or years. Therefore in these cases where there is positive evidence that the patient really has an anesthesia, for instance, hemianesthesia, loss of hearing or vision, and the like, if you can exclude simulation and exaggeration, the condition is due to physiological exhaustion of the centers, and the question of compensation, etc., does not play very much of a rôle.

One other factor to consider is this: Ideas, per se, the attitude of the individual, cannot produce any phenomena of a prolonged nature that affect the voluntary or involuntary nervous system. Heart disturbances, analgesia, and similar manifestations, cannot result from purely ideational states, and in post-traumatic states in which you have prolonged phenomena which affect the voluntary nervous system or the involuntary nervous system, the condition is not due to the mental attitude of the individual, but due to physiologic instability of some part of the body. We can understand, therefore, that in many of these people we have a history, extending back for years, perhaps, of nervous instability, and as a result of the shock incident to the accident they have an enhancement of all these phenomena; but the phenomena they have are really true and definite phenomena, just as fixed as if due to a true organic injury of the brain. We cannot, therefore, assume the attitude that the patients who show these symptoms dragging along month after month are affected by symptoms due to their mental attitude. In the British Army soldiers are receiving compensation for injury due to shell shock, and it seems to me that the traumatic neuroses are nothing more than a larger group, which includes the shell shock cases.

Dr. William A. Jones, Minneapolis: After years of experience I am of the opinion that the majority of these litigation cases are functional or hysterical; that a prompt settlement is the greatest thing that ever happened to the injured, whether he is going to recover or not. It is undoubtedly true that many people do recover under prompt settlement. I have seen many of these cases and know this to be true. Then, too, the effect of prompt settlement is very good on the rest of the family, it takes away from them the constant wearing out process of possible litigation.

Dr. Walter Timme, New York: I think there is very little doubt that there are a certain number of cases which, while they are called traumatic neurosis, are not that. These are among the cases that do not recover after settlement. They give practically the same symptoms as does the traumatic neurosis case. The most marked symptom is the asthenia. These are the cases which, following the accident, are intensely shocked. Usually the trauma is in the lower region of the spine or over the abdomen, causing profound shock to the proverbial ganglions of the sympathetic nervous system. Witness the following: A policeman, while rendering service on a trolley-car during a street-car strike, was standing on the car when it was suddenly brought to a stop by strikers. He was thrown forward, his abdomen striking against the brass rail of the platform. The company settled with him for five or six thousand dollars and believed he would recover. He has never recovered to this day. What happened was this: His sympathetic nervous system sustained a shock through the plexuses of the abdomen. His blood sugar content went down and remained permanently between 60 and 65 milligrams to 100 c.c. of blood, which is far too low, and there could be produced the white line of suprarenal insufficiency. Blood pressure was 100 mm. That man probably suffered a trauma of such an extent that he has never recovered. You can improve those cases by appropriate treatment, but they never recover, and a great many of the cases of so-called traumatic neurosis are of that type.

Dr. Charles W. Hitchcock, Detroit: In a recent discussion on this subject an able attorney from Detroit cited a case that illustrates the question and possible influence of "lump sum" settlement. The plaintiff had played the game so well that he had been awarded quite a large sum in settlement. He went to the attorney's office to receive his money and when the check for this large sum was handed to him he threw aside his crutches and endeavored to kick the chandelier.

Dr. Albert E. Sterne, Indianapolis: It seems evident from this discussion that we are going far afield in our ideas in regard to traumatic neuroses. In the first place, everybody who meets with an accident and has a claim for damages does not by any means suffer a traumatic neurosis, and, second, many people suffer veritable traumatic neurosis after injury of one or another type in which the question of damage does not arise at all, where we find the development of conditions following an accident due to their own personal neglect, or some other thing, in which the question of compensation cuts no figure whatsoever. Now shall we, simply because the element of compensation is attached to a case, arbitrarily designate that a traumatic neurosis, while in the case of another person to whom this question does not apply, but who has some form of obscure functional or organic nervous malady, we give another name? That is not neurology by any means. As a matter of fact, as we see by the working out of the Workmen's Compensation Act, there can be no doubt but that in a large percentage of cases the symptoms of purely nervous type disappear when the matter is settled. But when it comes to the straight-out cases of injury, of symptomatology after injury, which we could frankly, outspokenly and emphatically class among the group of traumatic neuroses, I do not think that that logic pertains at all. Traumatic neuroses per se is a definite thing. The true case is the result of a profound impression. The effect on the sympathetic autonomic nervous system is marked, and we are dealing with conditions of profound gravity. Real cases of symptom-complexes which arise after injury are among the most difficult with which we are confronted. It is a difficult problem, sometimes, for me to decide whether the individual is a malingerer. In malingering I think we have not a traumatic neurosis, but a simple case of fraud, and that has nothing whatever to do with the veritable condition which we call traumatic neurosis, a malady that seems quite in line with the other conditions we see, in which compensation plays no rôle at all, and in which we may fairly well assume that we are dealing with a case of true traumatic neurosis.

Dr. Albert F. Moffet Greene, Kansas City: I would ask Dr. Schaller to define traumatic neurosis. The subject has been confused with malingering neurosis as he sees it.

Dr. Walter F. Schaller, San Francisco: Traumatic neurosis is a neurosis following an accident and is not simulation. In reply to the question of hereditary or personal neuropathic predisposition: We had these factors in mind in considering prognosis, but found it impracticable to obtain reliable data for statistical purposes in this study, for if in an industrial case, you question the patient as to whether he is naturally of a nervous disposition, or if he comes of nervous stock, he will usually say "no," because as far as nervousness is concerned he feels that his is not a condition for industrial compensation and an admission to this effect would unfavorably influence his medical report. Scarcely any of our cases admitted personal nervous temperament or nervous heredity. Cases manifesting symptoms only after a latent period between injury and manifestation of the neurosis, I would classify as "secondary neuroses." Generally they are the most aggravated and persistent forms. We had about six psychopathic cases following trauma. They were not included in this series. Of these cases, there were perhaps two cases of paresis. A routine mental rating was not made in the series but only in those cases in which a more or less pronounced mental deficiency was suspected. I do not recall such a case in the fifty cases here reported. As regards simulation: we did not find a case that we considered to be one of out and out simulation, although exaggeration of symptoms were not infrequent. A number of patients suspected of simulation were followed by detectives at the instigation of the insurance companies interested. As a rule, these patients had been examined by a number of physicians and they had come to us as referred cases after the neurosis had existed for some time. The orthopedists and surgeons were generally glad to refer these cases, because they could do nothing with them. Dr. Reed asked about the financial status of these individuals. Time did not permit me to go into detail about this aspect of the problem, but in the original investigation, the financial status as regards wage and amount of compensation was given in detail.

LUMBAR PUNCTURE IN MENINGEAL HEMORRHAGE OF THE NEW-BORN *

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Hemorrhage of the brain in the newly born is by no means a seldom accident. It has been stated that this is the etiologic factor in one third of stillbirths. It follows in all varieties of deliveries; even spontaneous, easy deliveries are not free from this danger. This condition, first properly interpreted by Sarah McNutt, in 1885, forms one of the darkest chapters in pediatric medicine. More than thirty years before Little had described the spasticity of the muscles and the idiocy following the lesion and recognized its relation to long and protracted labors. While the majority of the infants so affected do not survive the birth act, a large group live several days, the first few hours not offering the slightest suspicion of the fatal outcome which is soon to follow. The group that survives and is able to weather the cerebral compression is only too well known to all of us.

SEAT OF HEMORRHAGE

That the location of the hemorrhage varies in the different cases cannot be gainsaid. The blood may be in the brain itself, the ventricles under the dura or arachnoid, at the convexity or base. The consensus of opinion seems to be that the meninges are the usual source of the bleeding, so that these cases are usually referred to as meningeal hemorrhage. The pressing against and over one another of the cranial bones with the laceration of the delicate blood vessels of the meninges is a logical explanation of what occurs. The delicate cerebral veins which course over the convexity to the longitudinal sinus are easily torn, as the parietal bones are pressed over one another. These are the supratentorial cases. Similarly in the infratentorial ones, the small veins ending in the lateral sinuses are torn as the occipital bone is squeezed under parietals. The sinuses themselves may be ruptured, but this is unusual.

CLINICAL PICTURE

The diagnosis of this condition at times is very problematic; again the symptoms are so outspoken that no mistake can be made in recognizing the true condition. For several hours after brith, except for a certain degree of asphyxia which seemingly has been overcome, the condition of the infant gives no hint of what is actually going on. As the hours go on more and more blood oozes from the vein, and we soon have evidence of cerebral compression. The distensibility of the sutures and bones of the infant's skull plays an important part in the delay of the appearance of increased intracranial tension with all its symptoms.

The vagus, vasomotor and respiratory centers all betray the effects of irritation. The pulse is strong, full and at times slow; the skin is a peculiar white color (arterial constriction); the respiration shows distinct changes, being superficial and rapid or again deep and pauseless. The reflexes are increased, and tonic and clonic contractions of the muscles of the face and extremities, followed by paresis, are usually seen. The often repeated convulsions with stupor, the bulging fontanel and wide gaping sutures are perhaps the most striking symptoms.

A close analysis of the symptoms reveals that whether the hemorrhage is located supratentorially or infratentorially, the clinical picture will vary. In the supratentorial hemorrhages, the blood covers the convexity of one or both hemispheres and is effectively prevented from reaching the base by the tentorium. In the infratentorial cases, the blood occupies the subarachnoid space covering the cerebellum and surrounding the medulla and extending into the spinal canal.

SUPRATENTORIAL HEMORRHAGE

Supratentorial hemorrhage is characterized by an early appearance of a bulging fontanel. The baby is very cross, cries a great deal, sleeps but little and refuses the breast. Seitz[1] asserts that this restlessness and crying is due to pain experienced by the infant as the result of tearing of the dura by the hemorrhage. The cyanosis is late in appearing and not especially pronounced, owing to the fact that the respiratory center is not affected until toward the end.

INFRATENTORIAL HEMORRHAGE

In infratentorial hemorrhage the fontanel is slow to become distended and must first await the development of a collateral edema. The infant is quiet, wants to sleep a great deal, is apathetic and early shows a cyanosis. Neck rigidity and tonic contractions of the muscles of the extremities are present as a result of the irritating presence of blood in the upper part of the spinal canal.

REPORT OF CASES

We have met with nine cases of this accident. Four patients died in the early days after birth, one having been submitted to craniotomy; death occurred in this case twelve hours later, and a large hemorrhage was found at necropsy at the base of the brain. Two survived and are typical examples of Little's disease; three were treated by lumbar puncture, two making a complete recovery. The third patient continued to have convulsions with spasticity of the extremities; death occurred at 9 months. Necropsy by Dr. Archibald showed slight adhesions and flattening over a small area of the right hemisphere.

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* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Seitz: Arch. f. Gynäk., 1907, 82, 544.

The three cases that were treated by lumbar puncture will be reported somewhat in detail.

Case 1.—Baby K., now approaching the third year, twenty-four hours after birth developed severe convulsions which continued in spite of chloral and bromids. Eighteen hours after the onset of the convulsions, I saw the patient at St. Ann's Hospital, in consultation with the obstetrician, Dr. Spain. The anterior fontanel was bulging, the sutures were separated and convulsion was following convulsion; previous to their onset, the baby had been quiet. The skin was pale white with a slight icteric hue; the respiration was irregular, now deep and again superficial. There were no clonic or tonic contractions and no paralysis; the baby swallowed poorly. The correct interpretation of the symptoms was only too apparent, and lumbar puncture was immediately performed. Thirty c.c. of pure blood immediately flowed from the needle; the distension of the fontanel receded; the infant became quiet, and there was no return of the convulsions. The following day there were slight tonic and clonic contractions of the left arm and face. These were missed the next day.

We believed that we had prevented the early death of the infant by relieving intracranial pressure, but fully expected that at the ninth or tenth month the infant would develop a spasticity of the extremities. That it would be possible to cure such a hopeless condition by a trivial operation was beyond our most sanguine expectations. This child is now nearly 3 years of age, and is perfectly normal in every respect, with normal intelligence.

Case 2.—Baby N. was first seen at the age of 6 days, at St. Ann's Hospital; the presenting symptom was a severe icterus, which was of such intensity as to make one consider the possibility of an obstruction in the bile passages. Severe vomiting was also present, which was relieved by stomach lavage. Twenty-four hours later, a profound stupor developed, the fontanel was bulging with wide separation of the sutures and the respiration was very much embarrassed. There had been no convulsions and no muscular spasms. At birth the infant weighed 9 pounds and Dr. Porterfield, the obstetrician, stated it had been a difficult forceps delivery. It was striking that in spite of the well developed infant, it would not cry and was very listless and apathetic. The icteric hue of the skin turned to a deathly pale color; the infant refused the breast and swallowing was difficult. The head appeared very much enlarged, globular in shape, with the frontal eminences very prominent. One was reminded very much of hydrocephalus. The baby's condition was desperate, and it appeared that it could live but a few hours. A fatal prognosis was given, and an attempt was made to reconcile the mother by informing her that idiocy and paralyzed extremities would be in store for the infant, if it were to survive. Lumbar puncture was performed and 60 c.c. of blood came gushing out; the fontanel receded only to become distended again in a few hours. The respiration became better and the infant brightened up considerably. The following day lumbar puncture was repeated with a free flow of blood from the needle; the third and fourth day this was repeated owing to the refilling of the anterior fontanel. In all 240 c.c. were removed, but it was apparent that there was considerable admixture of cerebrospinal fluid in the last 60 c.c. The anterior fontanel was still prominent, but owing to the marked improvement in the infant, it was decided to stop the lumbar punctures. The tape line revealed the circumference of the head to be 14.5 inches. It was necessary to nourish the infant artificially; it continued to thrive, and now at the age of 14 months there is absolutely no evidence of spasticity, and mentally the infant is all one could expect. The baby's recovery was a matter of the greatest wonderment to all who saw it.

Case 3.—Baby C. was delivered by Dr. Swahlen at St. Anns Hospital; the birth was easy and spontaneous. The infant was cross and fretful after birth, crying a great deal, and on the second day it developed repeated convulsions. Chloral was unable to influence them. The bulging fontanel gave evidence of increased intracranial pressure. Lumbar puncture was performed and 7 c.c. of pure blood flowed from the needle. Convulsions ceased temporarily but twelve hours later returned again. The following day lumbar puncture was repeated and cerebrospinal fluid of a pale pink color was removed. Convulsions continued and spasticity of the extremities developed. Death occurred at 9 months as a result of a nutritional disturbance; the necropsy results are reported above.

This case doubtless belonged to the supratentorial type; the blood removed by lumbar puncture may have come from a slight infratentorial bleeding or again some of the blood may have gained access to the cranial subarachnoid and then found its way to the spinal subarachnoid space. That the blood could have resulted from the injury of a small vein at the site of puncture is not probable, owing to the fact that the convulsions undoubtedly were temporarily relieved.

COMMENT

That it is possible not only to relieve but actually cure some cases of meningeal hemorrhage of the newborn by lumbar puncture is absolutely certain. Green[2] of Boston reports a case of intracranial hemorrhage completely cured by lumbar puncture. His case developed convulsive twitching of the extremities the second day, accompanied by cyanosis, nystagmus and apnea. The convulsions became more severe, and on the fourth day lumbar puncture was performed with removal of 5 c.c. of bloody spinal fluid. This brought about a remission of the symptoms, and the lumbar puncture was repeated for the fourth time in as many consecutive days. At 4 months of age, the baby was normal in every respect. Lippman[3] of New York similarly reports complete recovery in a case of meningeal hemorrhage following lumbar puncture. One puncture was sufficient, and 25 c.c. of slightly yellow-tinged cerebrospinal fluid were removed. The convulsions, restlessness, rigidity, crying and bulging fontanel all cleared up.

It is apparent that a supratentorial hemorrhage of any size cannot be relieved by lumbar puncture. The blood is usually located subdurally and, therefore, cannot readily find its way to the subarachnoid space. Furthermore, it is not easy for the blood to pass into the spinal subarachnoid owing to the interference at the foramen magnum. In this type of case, relief must come from above and craniotomy or incision through the coronal suture preceded by aspiration of cranial subdural space as practiced by Henschen[4] should be considered. Cushing,[5] in 1908, reported nine cases of intracranial hemorrhage, with a cure of four as the result of craniotomy. In the infratentorial type of case, nothing can be accomplished by an operation on the cranium, as the hemorrhage is not accessible. In all cases of suspected meningeal hemorrhage, lumbar puncture should be performed, as even in the supratentorial type of hemorrhage not only will there be almost a certainty of clinching the diagnosis, but the measure may be of definite therapeutic value, even resulting sometimes in a perfect cure.

CONCLUSIONS

From the fact that the condition is by no means rare, the possibility of meningeal hemorrhage should be ever in the minds of obstetrician and pediatrician in any obscure illness of the new-born infant. With any symptom of increased intracranial pressure, lumbar puncture should be immediately performed. This may not only clear up the diagnosis, but may actually save the infant from a fate which is one of the saddest that could possibly befall it.

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[2] Green: Boston Med. and Surg. Jour., 1916, **174**, 947.

[3] Lippman: New York Med. Jour., 1916, **103**, 263.

[4] Henschen: Verhandl. deutsch. Gesellsch. f. Chir., 1912, **41**, 271.

[5] Cited in Keen's Surgery, W. B. Saunders Company, Philadelphia, 1908.

ABSTRACT OF DISCUSSION

Dr. Frank C. Neff, Kansas City, Mo.: Intracranial hemorrhage in the new-born is not a rarity at all, although I believe that the pediatrist is usually called in to see the patients that die. The importance of the condition is emphasized because of its frequency, because of the mortality, and because of the serious late manifestations of the condition. We recognize these children in later life as idiots, with various sorts of palsies, at a time when nothing can be done for them. Whether anything can be done, and I have no doubt it can, as Dr. Brady says, it is certain that diagnosis is of great value at the time. This emphasizes what we have already known for a long time, that the pediatrist should have, possibly, the entire care of the new-born babe from the time of birth. We should have a chance to diagnose and do what can be done for these children at an early stage. The question of lumbar puncture is one of great importance as a diagnostic measure depending on whether the trauma is above the tentorium or below. It probably has therapeutic value by relieving compression.

Dr. John A. Foote, Washington, D. C.: I do not think that any pediatrician can say he has not seen a number of these cases. He is frequently called in at the end, when there is no doubt as to the diagnosis. Without slandering any of the other members of the profession, it is fair to say that the causes of intracranial hemorrhage in the infant do not always seem to be well understood. Perhaps, I might put that in a better way—it is really not a lack of knowledge, but a wrong knowledge. A great American humorist once said "It is not ignorance that makes so much trouble in the world, but knowing so many things that are not so." Many physicians seem to think they need only look for intracranial hemorrhage after a forceps operation or some unusual trauma. We know the condition occurs in two great classes—the first class, rapid labor, and the second, breech presentations, in which great pressure is made on the after-coming head. But I am firmly convinced that all of the causes are not maternal. Probably many cases occur after rapid delivery in which the cause lies not with the mother but with the child. I am sure many of us have seen hemorrhage of the new-born in connection with intracranial hemorrhage in infants. I think we would see many more if the children lived long enough. I think many of the cases which do not show rupture in the meningeal artery are not hemorrhages so much as oozing of the vessels of the pia, perhaps not producing the classical symptoms so early as hemorrhage from the meningeal artery. For that reason we can say, perhaps, that there is a hemorrhagic tendency, some degrees of permeability of the vessels, not going on to the extent that will produce characteristic vomiting of blood, but increased fragility of the vessels of the infant, which does produce, even after rapid labor, symptoms of hemorrhage of the brain. There is no doubt that great relief can be obtained by lowering intracranial pressure through lumbar puncture. As has been stated by the essayist, it is of great value as a diagnostic measure, and should never be omitted in any case of intracranial hemorrhage in an infant. It certainly can do no harm to use some method to increase the coagulability of the blood—blood serum, citrated blood or something of that sort, in attempting to offset the tendency to hemorrhage that undoubtedly exists in many of these children.

Dr. Frank C. Neff: I do not know whether this section has ever taken up the question of the effect of pituitary extract in the new-born. We are called to see babies where it has been used during their birth. I have seen more than one death from meningeal hemorrhage in the same family where pituitary extract was used in all the cases. I think this should be set down as a probable cause of hemorrhage.

Dr. Langley Porter, San Francisco: I want to emphasize the experience of Dr. Neff. In three cases in my own experience I have seen hemorrhages of the new-born after the use of pituitary extract.

Dr. John S. Davis, Dallas, Texas: I have seen six or seven of these cases; four of them have come to operation. We were unable to relieve the pressure entirely by lumbar puncture, and we opened through the suture, a proceeding with which you are familiar. I recall one case in which pituitary extract in as small an amount as 0.5 c.c. brought on violent pains, and caused extensive hemorrhage. Lumbar puncture was done, and seemed to relieve the pressure. The child has no paralysis, but the mental functions are much retarded. This case occurred in the family of a physician. In our experience, we do not always find bulging of the fontanel, notwithstanding the hemorrhage may be above the tentorium. I think pituitary extract certainly does a great deal of damage in some cases.

Dr. Lawrence T. Royster, Norfolk, Va.: I want to emphasize a point brought out by Dr. Davis, and that is that we must not rely on bulging of the fontanel for diagnosis. Some of the best descriptions of this condition have been those that described the "boardlike feel." It is more common than the bulging, in my experience, regardless of where the hemorrhage is. I do not think we should emphasize bulging of the fontanel, as usually it is not present.

Dr. Jules M. Brady, St. Louis: As Dr. Royster said, bulging of the fontanel is frequently absent in these cases. Some of these cases of intracranial hemorrhage are quite deceiving, as one will readily find on studying the literature. Sometimes, the only indication is listlessness of the baby and a deathly pallor, due to arterial constriction. In perusing the textbooks, one will find the value of lumbar puncture hardly mentioned. Dr. Pisek in Sajous' practice, maintains that it should be done in these cases. I think the value of this procedure should be emphasized, and I think that is the first thing we should do in suspected cases of intracranial hemorrhage. I feel that if we can see these babies early, when the first symptoms begin, we can probably get a fairly correct idea as to where the hemorrhage is located. It is generally thought that in hemorrhages in these little babies it is difficult to find out where the bleeding is. It seems to me in cases above the tentorium incision below the parietal suture, preceded by lumbar puncture, to locate the bleeding, is probably better than the operation suggested by Cushing of Baltimore.

Conditions Relative to Medical Students in the War in France.—The *Journal de Médecine de Bordeaux* discusses the centers for medical instruction that have been recently organized in the army zone to enable mobilized medical students to continue their medical course without depriving the army of their services. The writer remarks that the question of medical students in the war is a regular Chinese puzzle, and that the four years of war do not seem to have brought its rational solution any nearer. The measures taken to date reveal a military more than a medical influence, but courage and heroism and devotion do not make a doctor of a young man any more than they alone can make an artist of him or a first class aviator. Technical instruction is the only solid basis for a physician, and this can be given only in centers equipped for such technical instruction. The hastily organized *centres d'instruction* in the *zone des armées* are absolutely inadequate for proper training for the practice of medicine. The solution of the problem, he insists, is to send the medical students back to the medical schools, which are equipped and ready for them, and then have them given intensive and speeded-up courses, crowding into three months the work that is spread out over several months in peace times. Military surgery and military medicine can be taught in the army zone centers, but these are only a small part of medicine in general, and this can be taught only in a medical school. The writer adds that the students should not be sent to one or two selected schools but should be distributed so that no school will be swamped with numbers of students too large to handle for effectual instruction. This is the solution of the medical student question to which Italy has come after vainly trying to solve it by organizing a "camp university" near the front.

OIL OF CHENOPODIUM IN THE TREATMENT OF AMEBIC DYSENTERY *

PRELIMINARY REPORT

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The treatment of amebic dysentery has always been a matter of considerable difficulty. A large number of drugs have been used at various times with varying degrees of success. As listed in Hare's "Practical Therapeutics," these drugs include arsenic, mercuric chlorid, copaiba, ergot, lead acetate, ipecac, opium and camphor, and magnesium sulphate; also enemas of boric acid, zinc phenolsulphonate, copper sulphate, a cresol preparation, hamamelis, quinin, and silver nitrate. Ipecac has gradually forged ahead of the other drugs, and its active principle, emetin, has been found to be extremely effective in acute amebiasis, when given hypodermically.

A careful perusal of current medical literature, however, shows that physicians working in tropical countries are apparently not satisfied with emetin. While excellent results have been obtained with it, it is by no means atoxic, and untoward symptoms and even deaths have been attributed to its administration.[1] Moreover, there are cases of amebiasis which fail to respond to the emetin treatment. The results of treatment with epinephrin, an ipecac preparation, bismuth, cephaelin, creosote, emetin and arsenic, emetin bismuth iodin, emetin hydrochlorid, eucalyptus, ipecac, neo-arsphenamin (neosalvarsan), protargol, arsphenamin (salvarsan), simiruba, spartein, tannalbin, and thorium sulphate have been summarized.[2] Only positive and striking results would justify one in adding to this formidable list.

In connection with the campaign for the eradication and control of hookworm infection in Siam, dysentery was at the beginning considered as contra-indicating the administration of the anthelmintics used. As the improvement in the health of those taking the treatment became evident, however, persons suffering from dysentery as well as from various other conditions began to apply for examination. In spite of instructions to the contrary, a number of the dysentery patients were treated by the assistants and were clinically cured of their disease. Impressed by these favorable results, we decided to investigate the types of dysentery thus responding to treatment, one of us following cases in connection with the hookworm campaign, and the other the cases treated at the Chiengmai Hospital. Attempts were made to follow the cases after treatment, and to secure specimens of stool for repeated examinations. This proved impossible in most instances, but in the cases reported in these pages, confirmatory examinations were made.

The patients in the cases reported were ambulant, but suffering from dysenteric stools, with the exceptions already noted. No cases of fulminating amebiasis were treated by this method. When the microscope showed the presence of amebas, it was considered a safe criterion to diagnose as pathogenic those amebas that had ingested erythrocytes. No cases were diagnosed on the presence of cysts alone until those cysts had been activated by a saline cathartic, and the phagocytosis of erythrocytes observed in the amebas.

METHOD OF TREATMENT

The treatment to adults was administered in several ways. Some patients were given a preliminary dose of one-half ounce of magnesium sulphate, followed in two hours by 1 c.c. of the oil of chenopodium in capsule. One hour later, a second dose of 1 c.c. of oil of chenopodium was administered, followed within an hour by 1½ ounces of castor oil. In more severe cases, the preliminary saline was omitted, and 2 c.c. of the oil of chenopodium were administered in 1½ ounces of castor oil at a single dose. In other cases the oil of chenopodium emulsified with gum acacia was administered by rectum. In such cases the anal mucosa must be protected with petrolatum, and it is well to terminate the injection with 2 ounces of an inert oil. The buttocks should be elevated, the enema given slowly and with great care, the first dose not exceeding 8 ounces in the adult. This enema should be retained for an hour, if possible. If the parts are well protected with petrolatum, the patient does not suffer from the intense burning sensations which would otherwise accompany the expulsion of the enema. In practically every case, after treatment by one of the foregoing methods, there was marked improvement in the condition, as blood and mucus disappeared from the stools on the second day after treatment. In a few cases, as will be noted in the case reports, this improvement was not evident or was only temporary.

After reading Walker and Emrich's[3] article on the effect of oil of chenopodium on amebic cysts, we administered the treatment to two patients in whom cysts were found, with the results indicated in the case reports. In one of these cases, chloroform was included in the treatment as recommended by Walker and Emrich, but on account of some unfavorable symptoms, we have not used it in other cases.

REPORT OF CASES

Case 1.—A man, aged 25, had suffered from dysenteric stools for the six months previous to consultation. The stools were bloody and contained active amebas, with ingested erythrocytes, and ova of hookworm and *Trichuris trichiura.* He was treated with 1 ounce of magnesium sulphate at 7:30 a. m., with oil of chenopodium, 1 c.c., in emulsion with gum acacia, at 9:30 and again at 10:30, and with castor oil, 1 ounce, at 11:30 a. m. Blood disappeared from the stools on the second day, and the dysenteric symptoms subsided immediately. On reexamination twenty-nine days later, no amebas or cysts were found. The patient has been able to work and has had no dysentery since taking the treatment.

Case 2.—A man, aged 57, had been having dysentery with bloody stools for three months. Examination of the stools showed hookworm ova and active amebas, with ingested erythrocytes. The same treatment was administered as in Case 1. The stools were formed on the second day with no trace of blood. They were reexamined twenty-seven days later, when they were formed, and appeared normal. No amebas or cysts were found. The patent is in good health, able to work, and has had no attacks since taking the treatment.

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* The studies and observations contributed to this paper by Dr. Barnes were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation.

[1] Johnson, H. H., and Murphy, J. A.: The Toxic Effect of Emetine Hydrochlorid, Mil. Surgeon, 1917, **40**, 58-70. Kilgore, A. R.: Peripheral Neuritis Following Emetin Treatment of Amebic Dysentery, China Med. Jour., 1917, **31**.

[2] Tropical Diseases Bulletin, Index Number, January to June, 1917, **9**.

[3] Walker, E. L., and Emrich, William: The Treatment of Carriers of Endameba Histolytica with Oil of Chenopodium, The Journal A. M. A., May 19, 1917, pp. 1456-1457.

CASE 3.—A man, aged 24, had had from six to ten bloody stools daily for two months previous to consultation. Examination revealed active amebas, with ingested erythrocytes, and the ova of *Opisthorchis viverrini* Poirier. The patient was treated as in the foregoing. The next day the blood had disappeared from the stools, which became normal in number and appearance. Reexamination six days later revealed normal stools, no blood, no amebas and no cysts. Two weeks later, he stated that he was well and working. He has had one formed stool daily, since taking the treatment.

CASE 4.—A woman, aged 54, for the previous twelve months had been having from four to six stools daily, with blood in practically every stool. Examination revealed very active amebas, with ingested erythrocytes, and ova of *Opisthorchis viverrini*. The patient was treated as in the foregoing cases. The blood disappeared the next day. Seven days later, reexamination revealed a normal stool, with no amebas or cysts. She has had normal bowel movements since the treatment.

CASE 5.—A man, aged 21, for the previous two weeks had been having from eight to ten stools daily with blood and mucus. Examination revealed active amebas, with ingested erythrocytes. Treatment was administered as in the foregoing, except that the second dose of chenopodium was given in the castor oil. All symptoms subsided within two days. Eighteen days later, examination revealed normal stools, no amebas and no cysts. The patient has been having one formed stool daily since the treatment, and is working.

CASES RECURRENT AFTER EMETIN TREATMENT

CASE 6.—A man, aged 40, had had severe dysentery for ten years, with recovery. He had been free from attacks from that time until one year previous to consultation, when dysenteric stools had begun. Three months later, he had been given emetin treatment, receiving a total of ten injections. He did not know the amount given. He had continued to have from four to six stools daily with mucus and often blood, up to the present time. He was unable to work. He complained of pain in the lower abdomen on defecation. He had some pain in the lower abdomen practically all the time, but no pain over the hepatic region, and no palpable tumor or other evidence of hepatic involvement.

He was treated as described in the foregoing cases. Two days later the stool was formed, but contained a trace of blood. Five days later the stools were found formed, with still a slight trace of blood. No amebas were found on either examination, but a few atypical cysts were present, which might have been amebic. Several attempts were made to follow up this case, but without success. Repeated inquiries from his friends elicited the information that two months after treatment he was still free from dysenteric symptoms, and was working.

CASE 7.—A soldier, aged 25, had been having from eight to ten stools daily with blood and mucus for three weeks, and had been confined to the hospital in the barracks. The army physicians had treated him with daily injections of emetin hydrochlorid and with enemas of tannic acid. A total of 7 grains of emetin had been administered, but the bloody stools continued, although their number had been reduced to two or three daily. Examination at this stage revealed amebas in both the active and the resting stage. Treatment was administered by rectum, 0.5 c.c. of oil of chenopodium being administered in emulsion with gum acacia. The enema was retained for an hour and a half. Three days later, the patient was examined and the stools were found normal, with no blood and no amebas. On the twenty-third day after treatment, the army physicians reported that he was still free from symptoms and was doing his military duties.

CASE 8.—A man, aged 44, first seen in February, 1916, gave a history of chronic dysentery lasting for nearly two years. He was treated with emetin, 7 grains per day, for six days, the treatment resulting in apparent cure. Active amebas with ingested erythrocytes were found in the stools before the treatment, but disappeared after the third injection. June 18 of the same year he returned with dysentery, and with amebas in the stools, and was relieved with emetin, a total of 6 grains being administered. Feb. 10, 1917, he again returned for treatment. Amebas were found and emetin was again administered, 1 grain daily for seven days. In September, when he returned with a recurrent attack, amebas were again found. This time he was treated with 2 c.c. of oil of chenopodium in the manner described, that is, with a preliminary saline, followed two hours later by oil of chenopodium in capsule (1 c.c.), an hour later by 1 c.c., and an hour later with castor oil, 1 ounce. The next day, he had only two stools, no blood being seen. On the second and fifth day after treatment, no amebas were found in the stools. The patient had had no recurrences up to the time when last seen, Jan. 3, 1918.

CASE 9.—A merchant, aged 26, stated that on three different occasions he had been treated with emetin for dysentery, receiving four or five injections each time. These attacks occurred at intervals of about six months. When seen in August, 1917, he was having from eight to ten stools daily with blood, mucus and much pain. He was given 2 c.c. of oil of chenopodium in 1 ounce castor oil at a single dose. The next day he was practically free from symptoms, and the amebas, which were abundant in the stool on the morning of treatment, had disappeared. He returned, Jan. 2, 1918, with a recurrence, amebas again being found. The same treatment resulted in the same rapid disappearance of dysenteric symptoms.

CASE 10.—A woman, aged 27, was treated for dysentery on three different occasions during the two years previous to consultation, amebas being found at the beginning of each attack. The treatment was with emetin, a total of 8 grains, 6 grains, and 7 grains, respectively, being given during the three attacks. Nov. 12, 1917, about six month after the attack, she had a return of dysentery, and amebas were again present. She was treated with 2 c.c. of oil of chenopodium in 1 ounce of castor oil with quick results as to disappearance both of symptoms and of amebas. The patient had continued free from attacks up to the time when last seen, Feb. 4, 1918.

CASE 11.—A man, aged 60, Chinese, had had repeated attacks of dysentery for two years. The attack for which he applied for treatment was of two months' duration. His condition was complicated by nephritis and asthma. He was given emetin, 1 grain per day for six days, with only a slight amelioration of symptoms, mucus and blood being still present. Active, phagocytic amebas were found five days after the last dose of emetin. He was then given an enema of oil of chenopodium by the method described, with slight improvement. Six days later, a second treatment was given by enema, followed by very marked improvement. Blood and amebas disappeared from the stools, and only a slight amount of mucus persisted. The patient left the hospital. Two months later, he was still free from dysenteric symptoms.

TREATMENT OF CYST CARRIERS

CASE 12.—A man, aged 30, had suffered from dysentery almost continually for five months, with short periods of freedom from symptoms. Whenever he started to work, the symptoms returned. Examination of a soft stool showed the presence of amebic cysts, and hookworm ova. The cysts were four nucleated with a chromidial body (hematoxylin stain), and conformed to the descriptions given by Walker and Sellards.[4] One ounce of magnesium sulphate was administered, and in the saline stool active phagocytic amebas were found. Treatment with oil of chenopodium was carried out, the second dose being given in castor oil. The patient has not returned. Five days after treatment, considering himself cured, he left to secure work in a railway construction gang. Inquiry was made eight weeks after treatment, and his family stated that he was well and working on the railway.

CASE 13.—A man, aged 35, European, had suffered several attacks of dysentery and had been treated with emetin. The dysentery was slow in yielding to treatment. He had had no acute attack for two years, but had had several subacute attacks. Examination revealed the presence of hookworm ova and amebic cysts of the four-nucleated type with a chromidial body (hematoxylin stain). After the administration of an ounce of magnesium sulphate, the saline stool contained active phagocytic amebas. Treatment was administered according to the method suggested by Walker and Emrich. A total of 3 c.c. of oil of chenopodium in hourly doses of 1 c.c. was followed by 1 ounce of castor oil containing 50 minims of chloroform. Eight days later, reexamination of the stools revealed no hookworm ova, no amebas and no cysts. On the ninth day, a saline stool was examined with similar negative results. Four and a half months after treatment this patient continued well, with no indication of any tendency to recurrence.

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[4] Walker, E. L., and Sellards, A. W.: Experimental Entamoebic Dysentery, Phil. Jour. Sc., B, Trop. Med., 1913, 7, 253-331.

CASES FAILING TO RESPOND FAVORABLY

Case 14.—A man, aged 20, had had from three to six bloody stools daily for three years. Examination revealed the presence of the ova of hookworm, *Trichuris trichiura*, *Opisthorchis viverrini* and large numbers of the *Lamblia intestinalis* and active amebas with ingested erythrocytes. Treatment with oil of chenopodium was administered, a total of 2 c.c. being given, followed by 1 ounce of castor oil. All symptoms subsided within two days, with normal formed stools in which repeated examinations failed to show amebas or amebic cysts; but *Lamblia* cysts remained abundant, and a number of active *Lamblia* organisms were always present. This continued for three weeks, when dysenteric symptoms returned. Oil of chenopodium was administered by rectum as described, 1 c.c. being administered in 8 ounces of emulsion with gum acacia. This caused a subsidence of symptoms, which lasted for about ten days. The patient was then placed on emetin treatment, which resulted in much improvement; but the *Lamblia* infection remained unchecked, until he had received four high enemas of methylene blue, 4 grains to the pint of water. Dysenteric symptoms have been absent for four weeks up to Feb. 4, 1918.

Case 15.—A man, aged 41, had had dysenteric attacks for about a year, during which time he had been unable to do any work. He had been treated with emetin during one period, but did not know the amount given him. For several months he had had from six to ten stools daily with blood, mucus, and pain. Examination revealed the presence of ova of hookworm, *Trichuris trichiura*, *Opisthorchis viverrini*, oncospheres of *Taenia saginata*, an undetermined flagellate which was present in very large number, and active amebas with ingested erythrocytes. Two c.c. of oil of chenopodium were administered orally as described with marked improvement in symptoms, but with a recurrence within three weeks. The treatment was repeated with a similar initial improvement, followed by a recurrence within practically the same period. One c.c. was then administered by rectum in the manner described. This caused a very marked improvement, which, however, was followed by a recurrence within three weeks. The rectal treatment was repeated, with similar results. The patient was then put on emetin treatment and the amebic infection cleared up readily. The flagellate infection remained heavy, however, and it remains to be seen whether it may lead to a recurrence. Five weeks after the last treatment with emetin, he was free from symptoms.

Case 16.—A man, aged 34, was admitted to the hospital with a history of chronic dysentery lasting eight or nine months. Amebas with ingested erythrocytes were found in the stools. The patient was given 2 c.c. of oil of chenopodium in 1 ounce of castor oil. The next day, stools were more frequent, and defecation was painful. On examination, large numbers of actively motile amebas were found, and large numbers of *Lamblia intestinalis*. The patient was then put on emetin treatment, and the amebas disappeared; but diarrhea with pain, and sometimes mucus, persisted. Enemas containing oil of chenopodium were tried, with temporary amelioration. High enemas of methylene blue, 4 grains to the pint, and quinin, 5 grains to the pint, were given for nine successive days, and the patient was discharged as cured. Both *Lamblia* organisms and amebas had disappeared from the stools, and all symptoms had subsided.

COMMENT

From these cases, as well as from others which could not be followed as carefully, it is evident that the oil of chenopodium possesses marked power as an amebicide, and while some patients do not respond to it, many others are clinically cured by its administration. Cases complicated with a flagellate infection seem especially resistant to treatment. It is recognized that the absence of cysts from the stools is no proof that the patient has been permanently cured; but any drug that will cause such marked clinical improvement in dysentery patients as does the oil of chenopodium well merits further investigation. With emetin so difficult to obtain as it now is in oriental countries, oil of chenopodium may be used with great satisfaction in a large proportion of cases, emetin being reserved for the most severe types. For ambulant cases, oil of chenopodium is very convenient. It can be sent to a patient combined with castor oil, so that its administration requires no specially trained assistant, as would emetin, under the circumstances. So marked has been the improvement in the condition of the majority of the patients treated thus far, that as a routine measure all ambulant patients applying at the dispensary are treated as indicated, emetin being reserved for those patients who fail to respond promptly, or who show a tendency to relapse. A point to be remembered is that, on account of its irritating effects on the kidneys, oil of chenopodium should not be repeated in full doses at intervals of less than two or three weeks.

CONCLUSIONS

1. Oil of chenopodium relieves promptly the clinical symptoms in many patients with chronic and subacute amebic dysentery.

2. Oil of chenopodium administered by mouth or by rectum possesses marked power as an amebicide, as is shown by the rapid disappearance of amebas from the stools, following its administration.

3. There is a tendency to relapse in some cases, but in our series this is not greater than with the use of emetin.

4. The oil of chenopodium may be safely administered, when combined with castor oil in a single dose.

Health Abstracts for Houses.—The *Journal de Médecine de Bordeaux* remarks that it is impossible to go to the bottom in any matter interesting the public health without bumping against the obstacle of professional secrecy. The profession has been relieved of the obligation of professional secrecy in so far as epidemic diseases like cholera and diphtheria are concerned, but for all others professional secrecy must be kept inviolate. However, the municipal authorities already have in their possession data sufficient to establish the bill of health for each residence in the city. (The writer is referring to France of course.) The building permits the fumigation service, the sewerage system, the édilité system (official oversight of buildings, roads, weights, etc.) and the public health service—these various municipal departments have accumulations of data in regard to many if not all dwellings, and if they could be correlated and classified they would supply the health record of each dwelling involved. The editorial queries whether this task might not be undertaken so that any one wishing to know the health history of his dwelling could find it on consulting the public records. The owner might refuse to show the health abstract to the purchaser, but this the editorial seems to regard as immaterial. The whole question is merely to educate the public, to create a habit, to insure that the health history of the dwelling should be demanded of the owner before a purchase or before renting the dwelling.

RADICULITIS: ITS DIAGNOSIS AND INTERPRETATION *

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Radiculitis, the *syndrome radiculaire* of Dejerine[1] is an acute inflammation of the spinal nerve roots. We mean by a radicular syndrome, alterations of sensation or of muscle power which show that the primary disease-process producing them is in the spinal roots and not in the tracts and nuclei of the spinal cord. Likewise, we must distinguish such an innervation from a peripheral one. We know that every posterior root innervates a particular skin zone, its fibers reaching this area through several peripheral nerve trunks. Radicular areas are, therefore, very different from peripheral areas of innervation.

According to some, radiculitis should be used only in connection with disease of the sensory nerve roots. Such a limited pathologic picture is, however, rarely met with and the radicular syndrome generally includes an involvement of the anterior as well as of the posterior nerve roots. Wertheim - Salomonson[2] believes that radiculitis should refer only to neuritis of the spinal roots (both sensory and motor), and that neuralgia of a radicular innervation should not be grouped under this name. I agree with many French authors[3] that we cannot always distinguish between a neuralgia and a neuritis of the spinal roots, and radiculitis when used should refer to both of these.

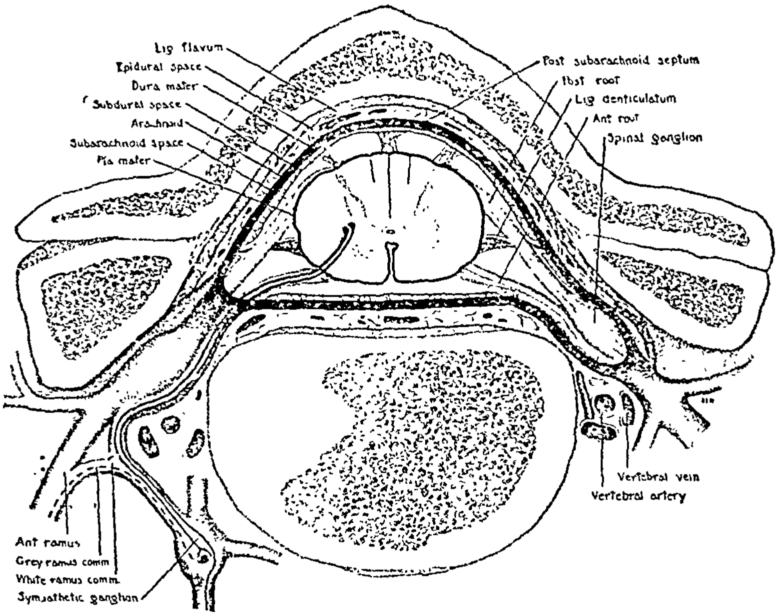

Fig. 1.—Cross section through the fourth cervical vertebra showing the meningeal sheaths, and the connections with the sympathetic nervous system modified from Rauber-Kopsch and Edinger.

Radiculitis is more frequent in the lumbosacral than in the cervical or thoracic roots, because here the roots are longer and more perpendicular and having fewer anastomoses, their involvement is more easily distinguished from neuritis of the nerve trunks. In the upper cervical region, for instance, the distance from an intervertebral foramen to the spinal ganglion is only 10 mm., but it increases the farther one goes along the cord, until in the first sacral root, this distance is 188 mm. In the cervical region, sensory (and also motor) root symptoms invariably involve several adjacent roots and the motor root symptoms overshadow those of the sensory roots. A radiculitis of the cervical region, therefore, frequently resembles superficially an Aran-Duchenne syndrome, and a lumbosacral radiculitis is generally thought to be sciatic neuralgia.

A perineuritis localized in the roots of the spinal nerves may be due to many kinds of infection and toxins. Radiculitis is, however, generally syphilitic in origin, occasionally tubercular, and, therefore, a radicular syndrome is often found accompanying both syphilis and tuberculosis of the vertebrae. It may result from stretching or pressure in all forms of arthritis and spondylitis, and in subluxations and fractures of the spine. These various mechanical origins of a radiculitis will not be dealt with in this paper. Our purpose is rather to establish its occurrence as a primary disease or accompanying a meningitis and, secondarily, to discuss wherein a radiculitis differs from symptoms of spinal cord disease.

What is the radicular nerve? It begins where the roots pierce the dura mater and terminates at the place where the posterior root fibers reach the superior pole of the ganglion. The two roots are separated from each other throughout this course by a dural sheath and do not unite. A meningeal sheath accompanies it and invaginates it like a funnel and ends (especially the pia) by fusing with the neurilemma. The subarachnoid space is continued on the roots as far as the superior ganglionic pole. The entire surface is, therefore, bathed by cerebrospinal fluid. Cestan and Sicard[4] have also called attention to the fact that the arachnoidal sheath descends farther along the posterior root than along the anterior root, so that an accumulation of endotoxins in this culdesac may occur and bring on a perineuritis. Sicard speaks of the part of the root between the ganglion and the conjunction of the two roots to form the nerve trunk as the funicular nerve, and disease of it as a funiculitis. This is the rachidian nerve of Dejerine. This portion has an extrameningeal course, is extremely short and is really a part of the nerve trunk (Fig. 1).

The neuralgia which generally ushers in a radiculitis gives rise to such severe pain, sharp and lancinating in character, that no attention is paid at first to any other diagnosis than the general one of neuralgia or neuritis. This may be an error of a twofold type. It may close the physician's eyes to a primary radicular or spinal disease originating with this symptom, or it may prevent him from recognizing that he is not dealing with disease of the nervous system at all.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Dejerine, J.: Séméiologie des affections du système nerveux, Paris, 1914, 1, 257.

[2] Wertheim-Salomonson, in Lewandowsky's Handbuch, 2, Part 1, 134.

[3] Camus: Etude de neuropathologie sur les radiculites, Thèse de Paris, 1908.

[4] Cestan and Sicard, cited by Lortat-Jacob and Sabareanu: Les sciatiques, Ed. 2, Paris, 1913.

Patrick recently called attention to the frequency of neuritis and neuralgia of the arms and legs and established the presence of arthritis in a large percentage of patients referred to him with these diagnoses. But we must not err on the other side and believe that osseous and joint diseases are the only origin of nerve pains, as do some orthopedists.

1. *Radicular Sensory Alterations.*—The pain of radiculitis in the early part of the disease may be unaccompanied by any objective loss of sensation. The usual finding is a decrease of tactile sensation which progressively increases in degree, always radicular, however, in innervation and, therefore, not altering in extent except when other nerve roots become affected, as for instance, in Kahler's type of syphilitic multiple root-neuritis.

Peripheral types of altered sensation, unlike the radicular, as a rule, change in outline on different examinations. The true type of radicular sensory disturbance is the bandlike areas invaded, around the trunk in zones, or in striae parallel to the long axis of the limbs in the arms and legs. This topography is explainable by the development of the embryo, which is made up of a series of metameres. The segments of the central nervous system corresponding to these metameres are called neuromeres. If we refer to sensory innervation, we speak of dermatomes; of muscular innervation, myotomes. These two are dissimilar, that is, a sensory root area of the skin does not correspond to the same motor root zone.

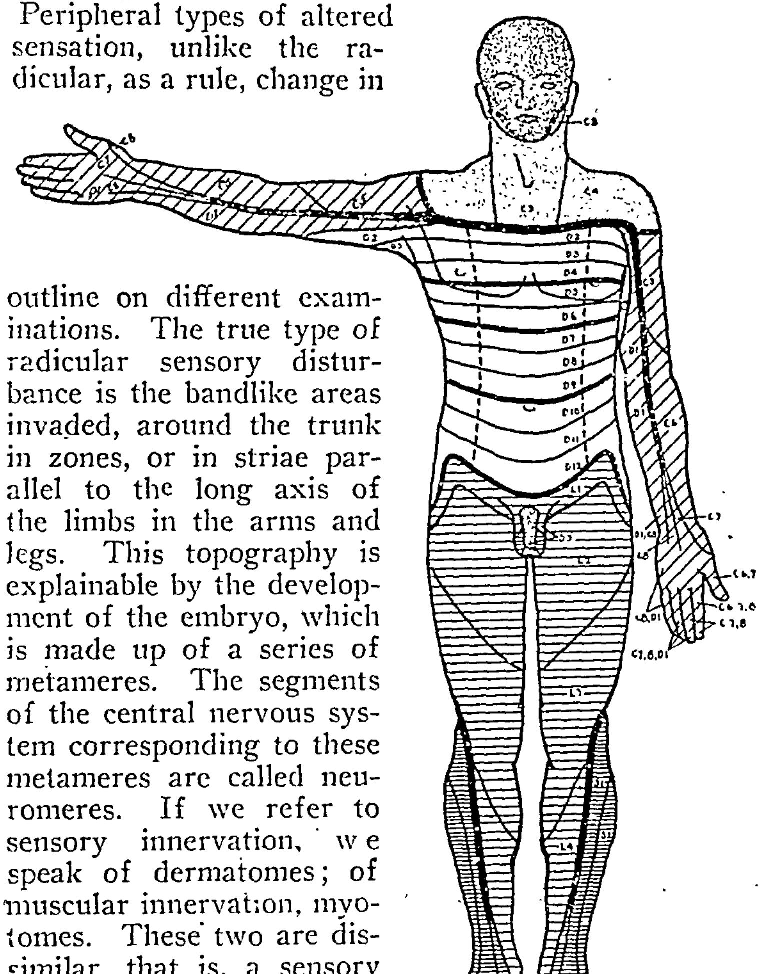

Fig. 2.—Radicular sensory innervation. Heavy lines indicate direction or axial lines. Modified from Dejerine and Flatau.

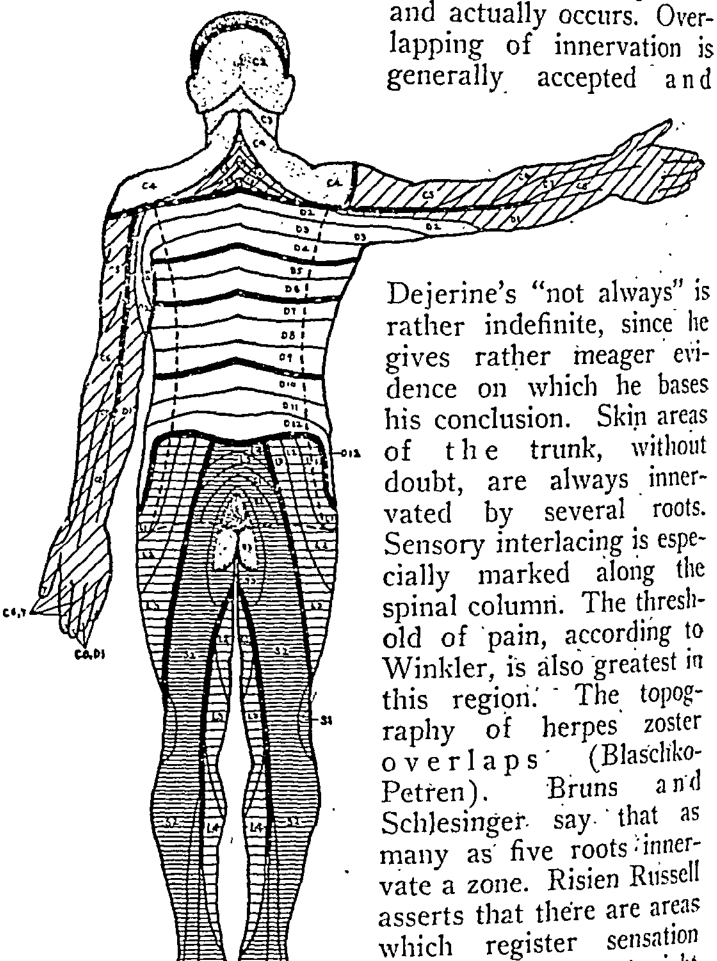

Fig. 3.—Radicular sensory innervation. Heavy lines indicate direction or axial lines. Modified from Dejerine and Flatau.

In radiculitis, the affected sensory areas are usually only hypesthetic. Anesthesia occurs only whenever the root fibers are completely destroyed and, as a rule, then only if two or more roots are involved. A radicular type of anesthesia occurs at the height of a cord lesion, but we find a segment of hyperesthesia above it and below it, a sensory dissociation of a syringomyelic type or a Brown-Séquard type of paralysis. I am referring, of course, especially to unilateral and partial lesions. Total myelitic lesions have a symptomatology which never leaves anyone in doubt. These types of dissociation do not occur in radiculitis. The German writers use interchangeably a radicular and a medullary innervation. I do not believe because of the foregoing that the two terms should be used indiscriminately.

A radicular type of altered sensation by itself is not distinctive. It is common to many disease processes and is not peculiar to a radiculitis. It may be part of the picture of locomotor ataxia, hematomyelia, pachymeningitis, and of various diseases of the spinal cord and roots due to pressure and crush. It may be the opening scene of an extradural tumor. A meningeal pocket distended with cerebrospinal fluid may cause localized pressure and evoke a radiculitis.

Dejerine[5] asserts that involvement of one posterior root is sufficient to bring out sensory changes. His observations, he says, have brought him to the conclusion that Sherrington's studies on the monkey, relating to innervation of the skin from three adjacent roots, do not always hold true in man. A monoradiculitis is possible and actually occurs. Overlapping of innervation is generally accepted and Dejerine's "not always" is rather indefinite, since he gives rather meager evidence on which he bases his conclusion. Skin areas of the trunk, without doubt, are always innervated by several roots. Sensory interlacing is especially marked along the spinal column. The threshold of pain, according to Winkler, is also greatest in this region. The topography of herpes zoster overlaps (Blaschko-Petren). Bruns and Schlesinger say that as many as five roots innervate a zone. Risien Russell asserts that there are areas which register sensation from as many as eight roots. The overlapping, as Sherrington called attention to, is more pronounced on the hands and feet than on the trunk. According to Head, there is a sharp limitation of the root areas for pain and temperature sensation. He seems to agree with Dejerine as far as these sensations are concerned. Seiffer notes that above the axillary line of the upper limbs (the proximal side) there is no overlapping. Sherrington, Muskens and Mackenzie agree that the overlapping pain is less than for touch. The zonal areas of innervation on the legs and arms are grouped together into axial or direction lines. These refer to the places on the skin which perhaps innervated from root areas widely apart in the spinal cord, yet adjoin on the skin (Figs. 2, 3 and 4). On the arm, for instance, above the axilla, the second dorsal area is next to the fourth and fifth cervical zones of innervation. On the leg, the second sacral root zone adjoins the third lumbar root area. Along these axial lines the interlacing of sensation and resultant overlapping is especially noticeable.

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[5] Dejerine, J.: Séméiologie des affections du système nerveux, Paris, 1914, 2, 821.

2. *The Sign of Coughing and Sneezing.*—This is the *signe de l'éternuement et de la toux* of Dejerine. The acts of coughing, sneezing and straining at stool produce severe pains radiating along the limbs. Oppenheim adds that in cervical radiculitis sudden movements of the head will produce severe pain. Though I have found it a useful sign in aiding in the interpretation of root and root-zone disease, it is not diagnostic, for its presence will not rule out other disease types. It is about in the same category as the many signs of sciatic involvement: Valleix's points, Bonnet's, Minor's and Neri's signs, Lasègue's phenomenon, etc., helpful if found, often absent, rarely diagnostic.

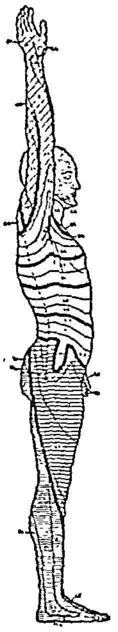

Fig. 4.—Radicular sensory innervation. Heavy lines indicate direction or axial lines. Modified from Dejerine and Flatau.

3. *Herpes.*—A herpetic eruption along the innervation of the posterior spinal roots, when present, practically eliminates in itself the possibility of a peripheral neuritis.

4. *Abolition of the Reflexes.*—In a complete radiculitis, all deep and superficial reflexes are abolished in the region innervated by the diseased roots. In the early stages, along with the irradiating pains, we may find increased reflex activity.

5. *Serologic Findings.*—Cerebrospinal fluid examination revealing a lymphocytosis and the presence of globulin is confirmatory of the diagnosis. The Wassermann reaction is also frequently positive inasmuch as syphilis is the most common etiologic factor.

6. *Unilaterality of Symptoms.*—A pure radiculitis is almost always one-sided. Bilateral involvement is rare. When it occurs, a meningomyelitis is probably commencing, even if the symptoms indicate only a radicular type of disease. An extramedullary tumor, as a rule, in the beginning, unilateral in symptomatology, must be always thought of.

7. *Muscular Atrophy.*—Involvement of the motor roots is not a necessary part of the picture of a radiculitis. However, in the cervical region, concomitant sensory and motor root involvement is the rule. In this region, also, a sharp distinction between root and plexus disease is not always possible, although an exact differential diagnosis has been attempted.[6] I cannot agree, however, with Oppenheim that because the same causal lesion generally affects both roots and plexus, it is not important to attempt a differentiation.

In radicular disease, since most muscles are supplied by two or three roots, a partial paralysis of a muscle is frequently noted. Flatau gives an unisegmental innervation to a few muscles, such as the tensor fasciae latae and the subclavius. Most muscles, however, contain elements from various roots resulting from the growing together of several myotomes.[7]

8. *Muscle Spasms.*—Abdominal muscle spasms due to irritation of the anterior roots with associated involvement of the sympathetic fibers frequently accompany radiculitis of the thoracic roots and occasionally of the lumbosacral roots (radiculitis meningopathique of Chipault). Abdominal angina as a result of arteriosclerosis must be excluded. I recently saw this type of abdominal pain and spasm in a patient of Dr. Lurting's, who was suspected of having posterior cord or root disease.

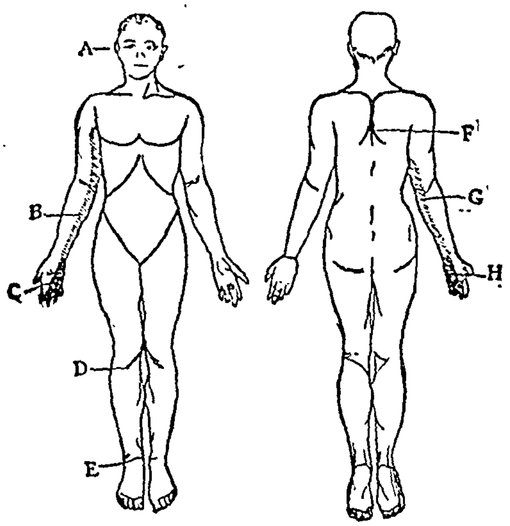

Fig. 5 (Case 1).—*A*, irregular pupils; *B*, hypesthesia; *C*, anesthesia; *D*, patellar clonus; *E*, ankle clonus; *F*, origin of radiating pain; *G*, hypesthesia; *H*, anesthesia.

9. *Sensory Dissociation in Radiculitis.*—The bandlike or longitudinally striated alterations of sensation are generally not equal for all modalities of sensation. A loss of tactile sensation associated with the conservation or an exaggeration of the pain sense is the usual type (*anesthésie douloureuse*). Of course, this is not distinctive or diagnostic, because it is noted also in peripheral nerve injuries. The causalgia of Weir Mitchell is a well known example of this. Deep sensibility is generally conserved. The true type of radicular sensory dissociation, according to Dejerine, is found in tabes. He has named it the "sensory radicular syndrome." Here the loss of tactile sensi-

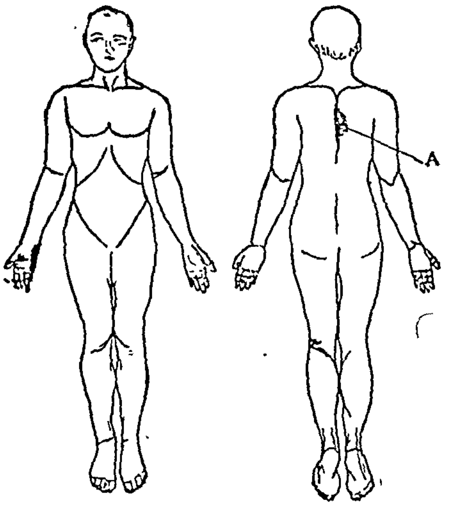

Fig. 6 (Case 2).—Biceps, triceps, pronators and flexors of hand and thenar, hypothenar and interossei involved; *A*, onset of pain.

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[6] Warrington-Jones: Lancet, London, 1906.

[7] Edinger: Bau der nervösen Zentralorgane, Ed. 8, 1911, 1, 114.

bility coexisting with loss of deep sensibility, particularly of the sense of position, is much more pronounced than are alterations of the pain or of the thermic sense. It is an inverse type to the dissociation of syringomyelia. If Dejerine meant that it was peculiar to tabes, I cannot agree. I have noticed this dissociation in cord disease from pernicious anemia, for instance. Loss of deep sensation (particularly the muscle sense) does not occur without involvement of the posterior cord, and, therefore, we are no longer considering a pure radiculitis. A progressive marginal sclerotic meningomyelitis may bring on this type of sensory change. This should be the diagnosis, therefore, whenever radicular symptoms only are found, if a sensory loss of the position sense and of the muscle sense are present. The presence of striated anesthetic zones accompanied by such a sensory dissociation should lead to a careful search for slight muscle weakness, hypotonus or mild transient or continuous spasticity. One can well understand in this connection that the problem of disease of the fibers making up the roots must be thought of in reference to their implication, before they have entered the spinal gray matter, at the height of their termination in the posterior horn or in the intermediate zone (Dejerine).

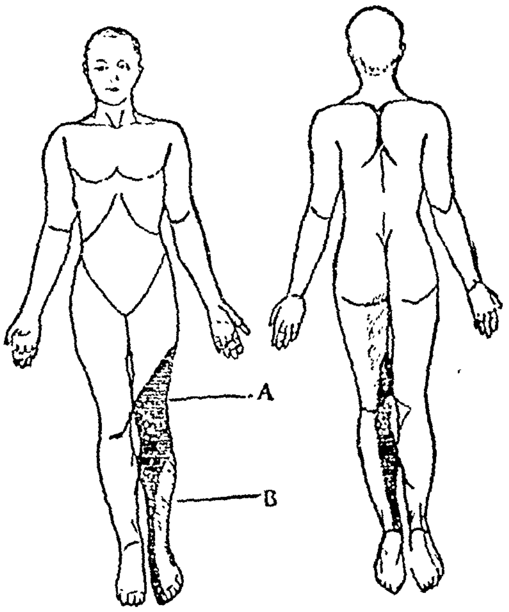

Fig. 7 (Case 3).—*A*, pronounced hypesthesia; *B*, slight hypesthesia.

The entire domain of proprioceptive reflexes and stimulation of the sensory pathways by the various organs of the body is also a problem which must be referred to in this connection. The finer sensory qualities of which we know so little and which regulate muscle and visceral activity are frequently altered in a radicular disease.

No sensation is a simple reaction, but depends on the judgment of the individual concerning complex neural processes. The threshold of sense perception varies so greatly that no word symbols can express individual distinctions. We must be content, therefore, with general words to express our interpretations, inasmuch as the clinician cannot interpret "pain or any sensation in reference to the problems of adaptation, contrast or liminal intensity." The "prefixed" and "postfixed" types of some writers refer to individual variations in the innervation of dermatomes.

We often find difficulty, therefore, in solving our clinical problems. In transverse lesions, for instance, of the cord, the retained sensation in certain root zones (first and second sacral) is very confusing. Head's explanation is that the sensory fibers group themselves in the lateral cords after their crossing and take a cortical course in the gray matter. The lateral cords are more resistant to compression and these fibers, therefore, escape injury. We may have, also, a lesion of the posterior cord without involvement of the corresponding posterior nerve roots. The symptoms of this Dejerine grouped under the name of the "syndrome of the long radicular fibers of the posterior cord." Intact tactile, pain and temperature sensations are present, or but slightly impaired, accompanied by a loss of the sense of position, of pain to pressure and of the vibratory sense (bone conduction). There is, likewise, a loss of the sense of tactile discrimination and of localization. This results in astereognosis.

In differentiating medullary from radicular involvement, it is necessary to remember the differences in innervation of roots and segments. The roots of the spinal cord, as before stated, especially in the lumbosacral region, take a long perpendicular course before forming a mixed nerve. Topographic differences in innervation occur. Most motor roots arise so near to their nuclei in the spinal cord that, for practical purposes, radicular and medullary segmentation may be considered to be the same. I have previously in this paper objected to their interchangeable use in reference to sensory innervation. The threefold course of the sensory fibers in the spinal cord, the bilaterality of those for pain and temperature, the unilateral course of the ordinary tactile fibers and the variations between long and short sensory fibers are reasons sufficient for this objection.

Clinical practice conforms to this. We guess at the height of a cord lesion. After establishing the anesthetic root areas and the overlying zone of hyperesthesia, we figure that the lesion is one segment higher. In fact, it is the general procedure to assume a lesion two segments higher.

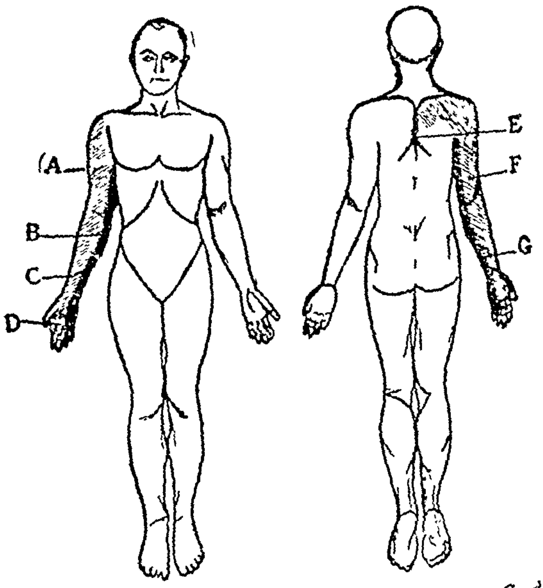

Fig. 8 (Case 4).—*A*, hypesthesia; *B*, lost sensation; *C*, dysbasia; *D*, hypotonus and spasms; *E*, onset of pain; *F*, radiating pain and hypesthesia; *G*, lost sensation.

Zona, herpes zoster, acute posterior poliomyelitis and acute posterior ganglionitis are various names given to disease of the posterior ganglions. The sensory symptoms are radicular in type. Its infectious origin has been established. Occasionally the inflammation invades the anterior roots, giving rise to muscle weakness and wasting. In addition to the herpes, radicular pains and a radicular decrease of sensation is usually found. Degenerated fibers have been traced into the spinal cord. The sympathetic ganglions with their *communicantes* to the sensory ganglions, as well as the entire problem of the trophic and vasomotor functions of the posterior roots, are not well understood and their discussion would take us far afield. We shall merely mention the well-known oculopupillary phenomenon and the pilomotor reactions. We may consider, also, that the work of Ross, Mackenzie and Head has established that the viscera receive their sensory fibers from the same area from which arise the sensory roots along which the pain is referred.

The following four cases will illustrate the types coming under the diagnosis of radiculitis:

Case 1.—E. S., aged 24, was attacked six months ago with shooting pains radiating from the back down the arm. There was motor weakness and wasting in regions innervated by the eighth cervical and first dorsal anterior roots, and possibly the seventh cervical. There was anesthesia to all sensations on the ulnar side of the hand and hypesthesia along the ulnar side of the arm. Tenderness was noted along the paraspinal line, from the fifth cervical to the first dorsal vertebra. Irregular pupils and increased reflexes were found, with ankle clonus. Pallor of the outer lower quadrant of the right optic disk was noted. The Wassermann reaction was positive, with forty-five cells on examination of the cerebrospinal fluid. The diagnosis was cerebrospinal syphilis, with radiculitis as a prominent syndrome. Three intravenous arsphenamin injections and daily mercurial inunctions were given for three months. The result was a negative spinal fluid and blood. Atrophy disappeared and muscle power returned. The clonus disappeared, but the increased reflex activity persisted. No change in sensory symptoms accompanied the muscular recovery, but later sensation became restored. The patient had an attack of herpes over the eighth cervical zone, a year before her present attack.

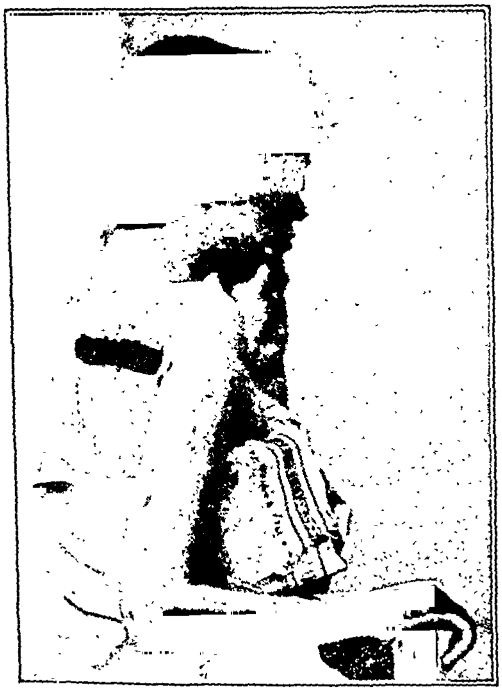

Fig. 9.—M. C. (Case 4), two months after exploratory operation. Areas of pain on touch painted with iodin. Notice herpes over fourth, fifth and sixth cervicals.

Case 2.—L. S. had a sudden onset, with pain between the shoulders, later radiating down the right arm. All movements started sharp, shooting pains in both arms, but especially in the right. The patient became faint from pain and was removed to the hospital. An interesting question was raised concerning his right to compensation under the laws of Pennsylvania. He claimed the heat (he was a billet maker) caused this illness. Paralysis set in after several days, with wasting in the areas of the fifth, sixth, seventh and eighth cervical roots. There was no objective alteration of sensibility. The Wassermann reaction was positive.

Case 3.—S. T. was suddenly attacked with pain in the left knee, ankle and in lower spine. He believes he slipped on the ice and sprained himself. The roentgenograms and laboratory reports were negative. There was no scoliosis. Hypesthesia to the touch was present over the area of the lower lumbar roots. There was no disturbance of heat and cold, muscle or pressure sense. Some lessened sensation occurred over the upper sacral innervation. There was a sluggish patellar reflex. There was weakness and wasting of the thigh muscles supplied by the anterior crural nerve. There was weakened action of the tibialis anticus, flexion of foot being barely possible. Muscle power slowly returned.

Case 4.—M. C. had a sudden onset, with pain between the shoulders, followed by sharp pains in the right arm and especially in the middle finger and dorsum of the hand. The arm was useless because of pain. Coughing and sneezing brought on pain. Exaggerated biceps and triceps reflexes were noted. There was weakness of the muscles innervated by the fifth, sixth and seventh cervical roots. Dysbasia was more prominent than any paralytic phenomena. There was a drawing pain in the back at the level of the first dorsal vertebra. There was a blunting of sensation to touch and temperature along the inner part of the hand, forearm and upper arm. An exploratory operation was performed (Dr. O. C. Gaub). The arachnoid membrane was cobwebby. The blood vessels were slightly congested. All the roots and spinal cord looked normal (lower cervical cord operation). Improvement followed the operation. Three months later, hyperesthesia of the eighth cervical and the first dorsal areas was noted and herpes of the fourth, fifth and sixth cervical areas.

ABSTRACT OF DISCUSSION

Dr. William A. Jones, Minneapolis: As illustrative of this subject, I would like to cite the case of a man in middle life who for sixteen years had a paroxysmal and recurrent pain in his right arm. He had no sensory loss of any kind. We decided that the only thing to do was to resect some of his posterior nerve roots. The location was carefully worked out and three roots were shaved off from the surface of the cord. He awoke from his anesthesia with a paroxysm of pain in exactly the same locality and without a shadow of disturbance in any of his sensory areas. He suffered for another year and then was operated on by another surgeon, who removed a root above and a root below the point at which we had operated. That relieved his pain, but incapacitated him muscularly as well as sensorially.

Dr. G. A. Moleen, Denver: While at the National Hospital for the Paralyzed and Epileptic, in England, I studied a case with Dr. Prentice in which Sir Victor Horsley had resected every other posterior root from the third to the ninth dorsal in a case of spastic paralysis without any sensory disturbance following. About a year ago Dr. Leonard Freeman of Denver, for the purpose of relieving a lumbosacral pain, resected the last three dorsal and the first three lumbar roots, as I recall, without sensory disturbance. In a case of gastric crisis in a tabetic I resected the posterior roots from the fifth to the eleventh dorsal, about a year and a half ago, and there was no loss of tactile sensibility following the operation, although affording prompt relief from the pain. Every single root was carefully resected subdurally. It would seem that we are wanting in an explanation for the absence of sensory disturbances following these resections, and I feel that this has a bearing on the subject presented. I would like to have Dr. Mayer's explanation, in view of the statement that the sensory functions of the posterior roots are pretty well defined, as I understood it to have been expressed.

Dr. Joseph Byrne, New York: The absence of sensory changes is to me rather inexplicable. For eight years I have been doing research work on the sensory system with a view to determine the mechanisms involved in pain, and it was difficult work On the psychologic side it is impossible to have pain without alterations in the sensory apparatus and consequently in sensation. On the purely physiologic side my own studies have convinced me that, if careful quantitative tests are made, it will be found that there are changes in one or other of the sensory domains.

Dr. Edward E Mayer, Pittsburgh: I intended at first to limit my paper to radiculitis of the lumbosacral cord, because our orthopedic friends have been lately stressing their point of view of low-back pains. Many forget that the spinal roots are really a part of the spinal cord, inasmuch as they are bathed by cerebrospinal fluid and have the same meningeal coverings and are, therefore, subject to similar diseases. Dr. Jones and Dr. Moleen both are well aware that I cannot answer their questions. This much is true, however, (1) that sensory innervations are more complex than motor ones, because the former deal with more complicated proprioceptors; (2) that sensory findings are only quasiobjective, though we accept our patients' registrations as being always actual, and therefore objective. Again, with cord disease, we have fairly precise level diagnoses, but here also it is largely the motor symptoms and the reflex changes which give us our segmental localization. Lost sensation, of course, is definite But pain is not. In the patients cited by Drs Jones and Moleen, I imagine, secondary involvement of sympathetic ganglions occurred. This often produces pain of an unlocalizable character The variations in the course of the different sensory fibers and the connections of the gray and white rami of the sympathetic are apt to produce confusion. We have not yet worked out certain obscure types of reflex disturbances. Oppenheim and Tournay have recently written about sensory changes of this character in reference to a syndrome radiculo-sympathique reflex, and Sicard describes an acromyotonia, which is worthy of consideration in this connection. Both of these writers were inspired by Babinski's recent work on physiopathic phenomena. I would like to talk of this, but it would require more time than I am permitted to take.

CHILDREN IN THE WAR ZONE *

J. P. SEDGWICK, M.D.
AND
N. O. PEARCE, M.D.
Professor of Pediatrics and Chief of the Department, and Teaching Fellow, Respectively, University of Minnesota Medical School
MINNEAPOLIS

One of the most important and interesting phases of the American Red Cross Work in France is the care of refugee children in the war zone. This work is carried out under the auspices of the children's bureau, which was organized in July of last year. The first work of this character undertaken was the establishment of an asylum and hospital for children at Toul, in the Meurthe and Moselle Department. This medical and relief work, with the help of the French civilian and military authorities, has been developed along such extensive lines that today the children's bureau, through this institution and traveling dispensaries, is able to bring help to the entire child population of the department, the fighting front of which, as all know, is the original sector taken over by the American expeditionary forces.

The need of this work can be better appreciated when it is recalled that in this whole district, where thousands of children are living under violently upset conditions, there were only fifteen hospital beds available for children, and these only for emergency operative cases There were but a few physicians available for civilian service, and these only because they had reached an age at which they were unable to endure army service.

When we undertook the organization of medical relief work in this department, there were about 200 little refugees at the Asile Caserne du Luxembourg at Toul. They had arrived a short time before from the partially destroyed villages directly behind the lines just north of Toul. It had been necessary to evacuate them quickly from these towns because of German gas attacks. These children had been living since the beginning of the war under almost daily bombardment among the ruins of their former homes. To exist at all under such conditions entailed many hardships and much neglect. Many had slept during this entire period in cellars where sanitation and hygienic conditions were of the poorest, as many as twenty-five to thirty women and children occupying the same room without ventilation or sunlight. Naturally food conditions were bad, and the children lived largely on coarse war bread, garden vegetables and chocolate, there being not so much a lack of food as improper preparation, owing to the fact that the mothers and older daughters were engaged every hour of the day in war or agricultural work.

TABLE 1.—HISTORY OF ONE HUNDRED FRENCH REFUGEE CHILDREN *

	Per Cent.
Fathers in army	93
Killed in battle	13
Prisoners of war	5
Mothers living	96
Natural delivery	95
Breast-fed 3 months	13
6 months	3
9 months	8
12 months	23
15 months	27
18 months	4
20 months	8
24 months	9

* The average number of children in a family was 4.

TABLE 2.—HEIGHT AND HEAD CIRCUMFERENCE OF TWO HUNDRED FRENCH REFUGEE CHILDREN,* COMPARED WITH AMERICAN STANDARDS OF HOLT

	Height		Head Circumference	
Age, in Years	American, cm.	French, cm.	American, cm.	French, cm.
1	73 50	69.80	45.20	46.18
2	82 80	75.12	47.70	47.22
3	89.10	82.08	48.80	49.10
4	96.70	93.45	49.90	49.44
5	105.90	99.05	51.80	49.88
6	111.40	104.76	.....	50.47
7	117.10	109.68	.....	50.72
8	122.20	114.93	.....	50.79
9	126.60	120.18	.....	51.80
10	132.10	128.53	53.10	52.45
11	136.90	136.40	.....	.....
12	143.20	137.08	.....	.....
13	148.50	139.50	.....	.....

* Girls, 57 per cent.; boys, 43 per cent.

So much has been said and written concerning the prevalence of tuberculosis, nervous diseases and venereal diseases among the French population that, as a basis for our medical work, we proceeded to make as careful a study as possible of these first 200 children; and the accompanying tables are a summary of the interesting points in the histories and physical findings, with such laboratory work as we were able to have done.

Table 1 is of particular interest, showing that 93 per cent. of the married men were in army service;

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* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

that 95 per cent. of the children had received breast milk for at least three months, and that a rather large percentage had continued to receive breast milk up until the end of the second year.

We were struck with the fact that the French children were shorter in stature than our American children of the same age, and that the head circumference of those 1 year old was relatively larger.

The Wassermann reactions were largely taken in selected cases in which there was a direct suspicion, so the number shown is not an indication of what one would find in the routine Wassermann examination of these children.

As may be gathered from the foregoing, in spite of the fact that these children were living under such abnormal conditions and were almost universally infected with filth diseases, there was little evidence of serious trouble. Of the active tuberculosis which we expected to find, there was less than 0.5 per cent., and this low percentage was maintained throughout the subsequent examination of hundreds more of these children. There was no evidence of shell shock in any case, although many of the children had lived for months within easy shooting distance of the front lines. Although the children, in almost every case, had head or body lice, and many of them had been living in homes where soldiers were billeted, we recognized no cases of typhus fever.

TABLE 3.—PHYSICAL EXAMINATION OF ABOUT TWO HUNDRED FRENCH CHILDREN, REFUGEES FROM WAR ZONE

General Appearance	Per Cent.	Chest	Per Cent.
Underdevelopment	45	Harrison groove	50.5
Undernourishment	46	Rosary, marked	
Skin		D'Espine	
Old or active impetigo	61.5	+	22
Chickenpox, active	6	++	3
Vaccination, usually three scars	64	+++	0.5
Head		Resonance impaired	3.5
Shape		Heart	
Rachitic	17	Outline normal	100
Hydrocephalic	1	Murmurs	6
Eyes		Abdomen	
Conjunctivitis	75	Type prominent	30
Ears: Otitis media	14.5	Liver enlarged	1
Nose		Spleen palpable	0.5
Mucous discharge	36	Reflexes	
Purulent	3	Chvostek	13
Teeth, poor condition	43.5	Knee jerks	
Tonsils		+	63
Enlarged	47	++	32
Removed	0	+++	1
Adenoids marked	25	Spine	
Enlarged Lymphatic Nodes		Scoliosis, marked	33.5
Cervical		Pott's disease	0.5
+	41	Shell traumatism	1
++	5	Von Pirquet Reaction	Number
Epitrochlear		Tested	404
+	15	Human +	78
++	1.5	Bovine +	31
Intercostal		Bovine +, Human —	9
+	3.5	Wassermann Reaction	
++	0.5	Tested 60 +	2
Tuberculous adenitis +	0.5		

Gonococcus infection negative in all examined.

Wheat Not Necessary.—We are accustomed to regard wheat as a more or less indispensible article of diet. It isn't. It is an article of luxury, and absolutely nothing else. Wheat possesses over oats, corn and rice absolutely no nutritional quality for man or beast. It has no more protein, and no better protein. It has no more fat, and no better fat. It has no mineral salt better or in larger amounts. It has no more fuel or better fuel: It is just *one* of the cereals, and there isn't the slightest evidence that it is the best one, because so far as comparative tests are concerned in animals, it isn't the best one, it is very far from the best one.—A. E. Taylor, M.D., U. S. Food Administrator.

WORK OF THE CHILDREN'S BUREAU, DEPARTMENT OF CIVIL AFFAIRS, AMERICAN RED CROSS, FRANCE *

WILLIAM PALMER LUCAS, M.D. (San Francisco)
Professor of Pediatrics, University of California, on leave of absence; Chief of the Children's Bureau, Department of Civil Affairs, American Red Cross, France

FRANCE

The Children's Bureau, American Red Cross, started its activities last July with eleven members. At the present time the bureau comprises more than 400 members, and is doing children's work and also a good deal of medical work for women throughout the whole of France.

Our first assignment was to take charge of the Childrens' Colony and to develop the hospital near Toul. In this army sector all children under 7 had been ordered back for a distance of 10 kilometers from the front, because of the gas bombing, children under 7 being unable to wear gas masks satisfactorily. Dr. Julius P. Sedgwick of Minneapolis was in charge of the early development of this work, and installed a colony of more than 500 mothers and children in the governmental military cantonment turned over to us for this purpose. Dr. Sedgwick also started a hospital for children, which has since been developed under Dr. Maynard Ladd of Boston, who took charge of the work after Dr. Sedgwick was obliged to return to his university duties the first of this year. We now have at Toul a hospital of 200 beds, fifty of them for maternity cases and the remainder for the diseases of children, both medical and surgical. In this department under the patronage of the préfet, M. Mirman, we have developed one or two other smaller hospitals and a chain of dispensaries in the smaller towns, especially the manufacturing centers—towns of from 10,000 to 20,000 inhabitants. Here our traveling dispensaries have clinics once or twice a week, a physician, nurse and aide comprising the unit. Throughout

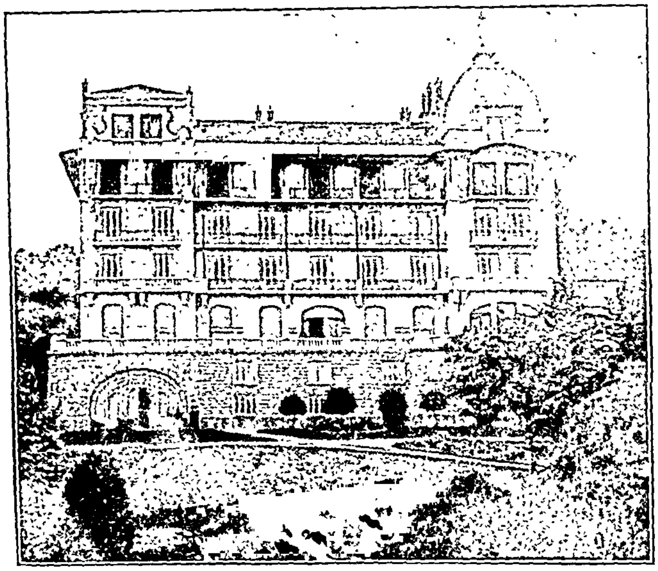

Fig. 1.—American Red Cross contagious disease hospital for children, capacity 200 beds, at Evian, France.

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* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the war zone we have developed this type of work, our center being some town or city with a small hospital, with the traveling dispensary covering a radius of from 15 to 20 miles. We have had such work at Chalons and also at Amiens and Nesle. At both of the latter, unfortunately, we had to give up in the first offensive this spring. Our work in the war zone at the present time is all under Dr. Maynard Ladd of Boston, who has charge of the development and operation throughout the whole of that section.

Fig. 2.—Visiting hour at the American Red Cross contagious disease hospital for children, Evian.

Our second large assignment was the work with the *rapatriés*. These are the inhabitants from the north of France, whose country has been occupied by the Germans since 1914. They are sent back first into Belgium. From there, after a stay of a few weeks to a few months, they are brought through Germany and Switzerland, entering France at Evian, on Lake Geneva. Here, when the convoys are operating, from 1,200 to 1,400 people enter daily. The convoys consist mainly of old people and young children, and mothers with large families—all those that the Germans cannot in any way use in their industrial or agricultural work. At Evian we have had the opportunity of working directly under the French Public Health Service, of which Dr. Paul Armand-Delille is chief. The Children's Bureau of the American Red Cross was given charge of all the children's work at this station. We had first the problem of inspecting all the children who entered—some 500 or 600 daily. Since taking charge we have examined more than 40,000 children, picking out those with contagious diseases for our acute disease hospital of 200 beds, which we operate in one of the modern hotels of this summer watering place. We have also had a daily dispensary, which takes care of those who do not have to enter the hospital, but need medical attention before they are sent on in smaller convoys to various departments in the interior of France. As one can readily imagine, this has been a very important public health station. In our hospital, thanks to the excellent work of our various medical chiefs, and especially to the fine medical and administrative qualities of Dr. C. F. Gelston, who has had charge of the work for the longest time, as well as to the efficient nursing service which we have been able to build up, we have had less than 2 per cent. cross-infections, proof enough in itself of the careful and scientific management of such a rapidly changing acute disease hospital. In this work we have been operating in very close conjunction with the French organization for repatriated children of Lyons, of which Mme. Gillet-Motte is chairman. Under her, this work has developed into one of the most remarkable and successful "œuvres" for children in France today. We have just outside of Lyons a large convalescent home of 200 beds for these children, in a château which was given to us for the period of the war expressly for this purpose.

Our third main type of work has been in the larger cities of France as well as in some of the smaller important manufacturing towns, where, on account of the acute congestion in the cities, the medical and social problems have been greatly increased. The medical problem throughout France one can better understand if one realizes that practically all the medical profession of France has been mobilized. Every medical man under 55 is in army service, and most of the good medical men over 55 in the larger cities are also mobilized for a part of their time in the military hospitals of their own cities. This has created a great need for medical service. In many quarters there is only one French physician to 5,000 inhabitants, and in some of the more sparsely populated centers, I am told by the French authorities that there is only one physician to 20,000 inhabitants. Many small towns of from 5,000 to 6,000 have no physician at all. In Paris, Lyons, Bordeaux, Marseilles, St. Etienne, Evian and other manufacturing towns, we have centers for our work. In most of these we have one or more hospitals and a chain of dispensaries and infant welfare centers, with physician and nurse and aide attached. It is in conjunction with these centers that we are carrying on our training schools for health visitors for French women. In this field we already have between sixty and seventy American physicians, about 50 per cent. of whom are women, and the work which they are doing it is impossible for me to praise too highly. The consecration and sacrifice which these physicians are making is most commendable, as is the work which our nursing service has given. Our whole nursing service is under the charge of Miss Elizabeth Ash of San Francisco. Under her intelligent supervision and with her broad point of view we have been able to meet this most difficult situation.

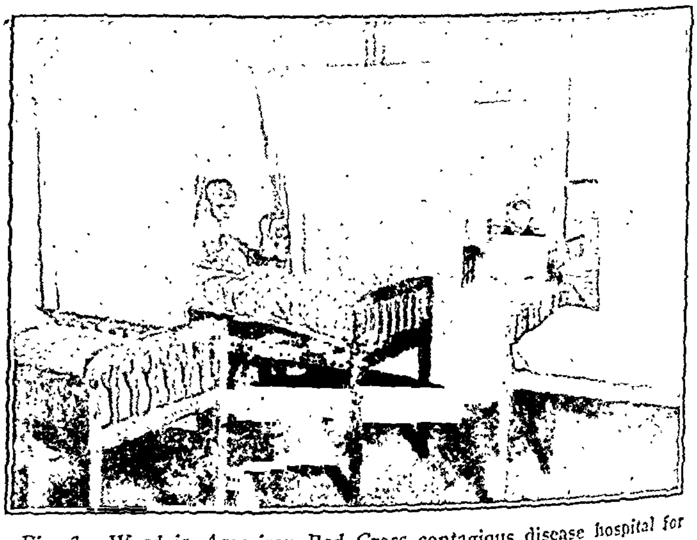
Fig. 3.—Ward in American Red Cross contagious disease hospital for children at Evian, showing cubicle system by sterile curtains.

Our main efforts for child welfare have been those dealing with infancy, so that where we did not find any establishment for children in France we have tried to increase the amount of nursing and care given to young infants. This work cannot be overestimated. It is the foundation stone of all child welfare, together with prenatal care, which we have emphasized at all points. But the older child, especially the adolescent child in all countries, has received very little attention, and under present conditions this is almost inevitable. We have been attempting to reach this class as far as possible through our special supplemental lunches in the schools, which Dr. Knox of Baltimore and Dr. Manning of Seattle have developed in Paris, and which we are extending to other cities as the need arises. Our dispensary system in Paris has been worked out in cooperation with the Rockefeller Commission for Tuberculosis. This work was originally developed with Dr. James Alexander Miller of New York, our Children's Bureau cooperating with the commission in one of the sections of Paris where we have worked out a model system of dispensary follow-up care. We are planning to establish a clearing house for children in Paris, as hundreds of refugee children come through from the north of France. The need for this has been felt by many agencies. The size of the problem is almost overwhelming.

Fig. 4.—Grandfather dressed in sterile robe and cap visiting his grandson in the American Red Cross contagious disease hospital for children at Evian.

Another section of our work is that of assisting French organizations occupied with children. This is really the relief section, and has been developed mainly by Mrs. Hill, who has been working with children (Frontier Children of France) since the war began, and of late by Dr. Reeder, who has evolved a plan for coordinating the child-placing which comes to our bureau with that of all the various French organizations which place children either in homes or in colonies.

The last and perhaps the most important development of our activities is that related to the educational side. This has been developed along the same lines with which we are all familiar in this country. First, we have an educational bureau, by which we have attempted through pamphlets and the press to reach the public. We have publications on prenatal care and the care of the young child, dental hygiene, recreation, etc., and were fortunate enough to secure a number of very good cartoons by the best French artists. This, in conjunction with our traveling and city exhibits for child welfare work, we feel to be one of the most important lines of educational work that we have been able to undertake. The French government, in its Department of Interior, Public Health Service, of which M. Brisac is chief, and in cooperation with the National Association for the Prevention of Infant Mortality, of which Senator Strauss is president, has cooperated very closely with us in the formation of this program, and we are working together on a broad national campaign for the reduction of infant mortality. The problem in France is one not only of reduced infant mortality, but, what is even more serious, a very marked reduction in the birth rate. The infant mortality rate, for instance, for Paris for 1917 was 126, but the birth rate had fallen over 50 per cent. of the normal birth rate, so that the necessity for saving every child's life possible is more than evident. The total infant yearly death rate in France is estimated variously from 80,000 to 100,000 infants a year. We hope by the creation of infant welfare stations, in which France was the pioneer, the first infant welfare station having been started by Budin in 1891, to affect materially a reduction in infant mortality, especially in conjunction with our schools for health visitors, which are being developed in all the large cities in France. Short courses of from five to ten months are carried on in cooperation with the Rockefeller Foundation. In these schools we are training the French women to carry on the "follow-up" work, both social and medical, in our dispensaries.

Lastly, with our traveling exhibits and infant welfare expositions in the large cities, we hope to reach the larger part of the population of France within a very short time. The importance of this cannot be overestimated, and it is very gratifying to see the response which we have received not only from the government, but from all classes of people and all the French organizations interested in child welfare work, wherever we have been privileged to commence this work.

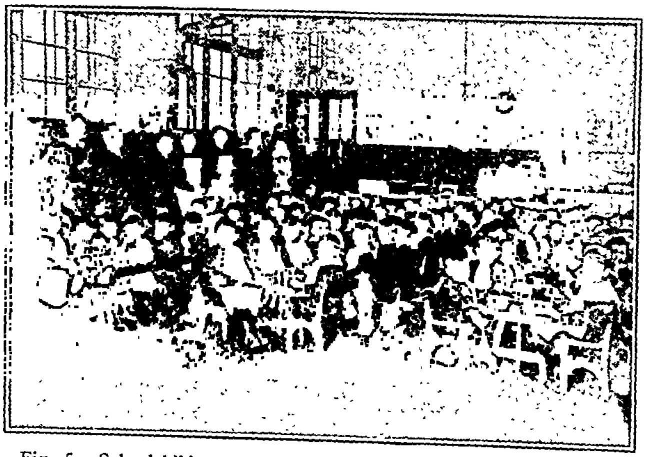

Fig. 5.—Schoolchildren at Paris being supplied with school lunches by American Red Cross.

The efforts of the Children's Bureau, then, are already numerous. The type of medical assistance that we need is general rather than special. Perhaps the most lasting result which the Children's Bureau will accomplish will be the "follow-up" work, which will be carried on, we hope, by a large number of trained French health visitors. The child life of a country is the second line of defense. It must be preserved at any cost, and strengthened in every way, if we would keep any nation truly prepared to meet future demands. The conservation of child life is as much a part of this great conflict as the maintenance of armies. It is for the future freedom of the children of today and of tomorrow that our Allied armies struggle at present. The struggle must not be in vain. From such ideals at home the Children's Bureau of the American Red Cross sprang. Toward the consummation of such ideals the Children's Bureau will continue to work.

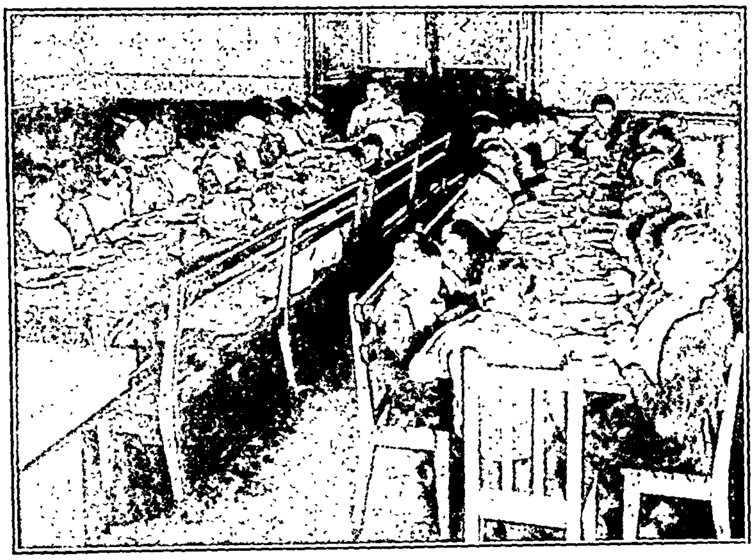

Fig. 6.—Dinner at Chateau des Halles, American Red Cross convalescent hospital for children near Lyons.

This paper and the one by Drs. J. P. Sedgwick and N. O. Pearce, which precedes it, are part of a symposium on Child Welfare. The remaining papers, by Drs. L. R. DeBuys, Paul Armand-Delille and Grace L. Meigs, appeared last week.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DE BUYS, ARMAND-DELILLE, MEIGS, SEDGWICK AND PEARCE, AND LUCAS

Dr. Raymond Hoobler, Detroit: Having heard these facts presented, there is laid on us a deep responsibility. Those of us living in large cities, particularly where munitions are being made, where women labor, and where they will soon be called to the maximum, should not be derelict in our duty. As Dr. Lucas has said, where there were 5,000 women in France making ammunition at the outbreak of the war, today there are 800,000. It hardly seems possible that the same thing will occur in our own land, but if this terrible war continues, it will not be unlikely that we will have to face this same problem. This would develop a tremendous problem among our children. While this problem is comparatively small now, with only a few women working in plants in our home towns,—now is the time for us to begin the campaign, so that as day by day numbers of mothers are called into this great work, we will keep step with the responsibility, and not wait for two, three or four years, and then try to get under the load. Let us get under it in the beginning. How many of us know how many mothers are working in munition plants in our town? If we knew we might be carrying a heavier load now. I suggest that we all go home and find out. A possible method of determination of the number of mothers working in the various factories would be through the Board of Health—having all the factories who employ women report to the Board. After determining the number of mothers who are working in these places, we will have a basis on which to organize some system of determining whether the children of these mothers are being properly cared for; whether any rooms are set aside in munition plants and other factories where these mothers can bring their children and have them supervised while they work. Women with nursing babies should have time allotted to go to their babies at regular intervals. This could be accomplished by having rooms set aside, properly equipped and with competent nurses in charge, to care for these babies at the factories where the mothers work. We should tackle this problem before the burden becomes too large, and little by little keep pace with the tremendous need which is surely coming.

Dr. Edgar J. Huenekens, Minneapolis: The most important thing we can do is to expand the infant welfare work we are already doing. It is well organized in the larger cities, but hardly any work has been done in the smaller communities. About a year ago I was called to see a baby at Little Falls, a town of about 7,000. The nurse in charge of the infant welfare work had already attached to herself ten or twelve babies, so that when I arrived I saw not one baby but a dozen babies. This opened my eyes to the need for this work, and with the aid of the Civic League we started welfare clinics. They have become so successful and so popular that we now have children coming from the surrounding towns. Before we started we had a conference with the physicians of the town to make sure of their cooperation. This clinic was started as an experiment, and it has been so successful that with the cooperation of the state Board of Health, the University of Minnesota and the pediatricians, we are trying to extend such clinics throughout the state. We are trying to have a full time pediatrician go about the state conducting these infant welfare clinics, and to stimulate communities to get public health nurses and to conduct these clinics. We have had great difficulty in getting the cooperation of the State Safety Committtee. A resolution from this body directed to the State Board of Health would bring pressure to bear on these Safety Bureaus. The work in these smaller communities has not kept pace with that in the large cities, and it is often of compartively greater value in the smaller communities.

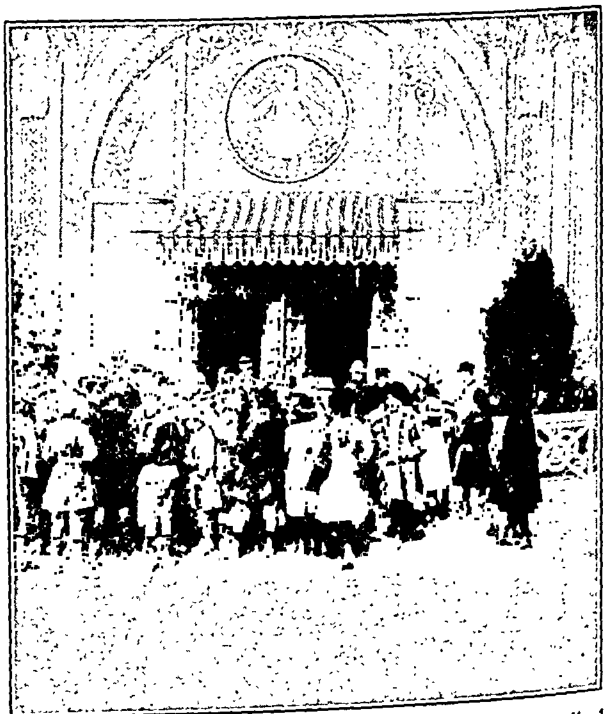

Fig 7.—Entrance to child welfare exhibit at Lyons in April, 1918; 1,000 schoolchildren daily attended the exhibit with their teachers.

Dr. Lawrence T. Royster, Norfolk, Va.: This is just the beginning of general plans to be carried out throughout the entire United States, so that every child may be known personally to the Bureau at Washington. It is the only way we can accomplish anything in conservation of child life. In the child welfare clinic with which I am connected, in a town of 100,000, having an attendance in 1917 of 4,832, just before our weighing and measuring came off we had a house to house canvass. Every child up to the sixth year was registered by an individual registrar going from house to house, so we could check up how many children failed to come to the weighing stations at the end of the week, and I am sorry to say the number coming in comparison with the register is small. There is much to be done to get this knowledge disseminated. With all our efforts, a comparatively small number came to us. This is an educational propaganda, like everything else. Education in one form or another is the salvation of our race, regardless of how you may apply it. Everything said here this morning is educational—means educational work on our part—but the application of that education is what we need. I believe the Federal Bureau has eventually in mind, through its Child Bureau, registration of every baby born in the United States, and a record kept of it up to school age, and it is perfectly feasible. If one community can get a census of every baby as we got it, it is not impossible for other communities. It is just a question of whether you want it. Then we can keep track of the population, having them report to private physicians or clinics at regular periods, and thereby build up the nation—a nation that will be stronger and healthier. We know, as Gladstone said "On the health of the people depends the strength of the Nation." Will each one of us go home determined to find out the condition of the children in his own community, and then help this propaganda for individual teaching?

Fig. 8.—Outdoor kindergarten class, American Red Cross child welfare exhibit, Lyons, April, 1918.

Dr. Joseph I. Grover, Boston: In Boston the babies were weighed and measured about a month ago, and the work was carried on by women who evidently knew nothing about it. They did a great deal of harm. One woman in my neighborhood was chosen because she knew how to weigh potatoes. Some of the babies were weighed four or five pounds out of the way. One of the women sent fifteen or twenty babies to a doctor who was a relative of hers, one year out of the medical school. One mother asked the woman in charge what she ought to do about her baby because it was underweight, and she was advised to wean it. These tests, to be of value, should be conducted by people qualified to make them.

Dr. Franklin N. Rogers, Manchester, N. H.: Manchester is a city of 80,000 people and is one of the largest manufacturing cities in New England. About half of the population work in textile mills or shoe shops. At least half consist of women. Like all mill cities where women work of necessity or for gain, there necessarily exists a great demand for child welfare work. This child welfare work has increased since the war began. As more and more men leave our city for the front, the greater will be the number of mothers seeking employment which will of necessity separate them from their children. The question which confronts our city as well as any city of like nature, in this crisis, is how are we going to expand child welfare work in order that we may keep the death rate down. The pediatrician doing child welfare work naturally is called on to do all in his power to help the social service workers. The pediatrician believes that child welfare work is definitely a war work, and I believe that both the pediatrician and the obstetrician should be considered war workers and should be given recognition.

Dr. Louis H. Schwartz, New York: It should be emphasized that this work is distinctly a war measure. This is just as patriotic work as any other, and provision should be made for it as war work. In New York this work is a great problem. In one zone alone we have 44,000 children from 2 to 6 years of age. I should like to impress on this society that this should be put up as a vital necessity to the country, for which proper provision should be made, and not left to volunteers. The country should be awakened to the importance of systematic, regular examinations of children, and proper registration of them.

Dr. John A. Foote, Washington, D. C.: Any one who has read the history of infant welfare work in the past realizes that children suffer not only during war but also and still more from economic conditions following the war. The rich nations have always taken very good care of their children. The ancient Egyptians and Babylonians were rich nations and their children were well cared for; but among the poorer nations, for instance China, the drowning of females is common. There are many things that more civilized nations do in exploiting children which cause a great increase in child mortality. If the United States is going to be any different from any other nation in history, it must do this work not only during the war, but must so solidify organization that the work will go on after the war, when the great burden of taxation, and so forth, comes to this now rich nation.

Dr. J. T. Christison, St. Paul: In reference to this so-called "baby week." This work has been carried on throughout the country. In my own city it was conducted by women's clubs, dominated by a woman who calls herself a "doctor of osteopathy." Does the bureau at Washington send out all this literature and cards to such individuals expecting physicians in these cities to fall in line? We did not do it in St. Paul for the simple reason that the supervisor of our Baby Welfare work would not permit us to do so. Why does the bureau at Washington not send its literature to the state officers of the various bureaus of health? Then it would get into the proper channels and something would result in a beneficial way. A number of these cards were brought to my office after being filled out and various suggestions offered as to sundry operations on the children which in every case were quite unnecessary. I would like to suggest that Dr. Meigs impress on this bureau the necessity of conducting a campaign of this sort in the right direction.

Fig. 9.—Indoor kindergarten class, child welfare exhibit, Lyons, April, 1918.

Dr. Langley Porter, San Francisco: It is undoubtedly true that the bureau at Washington is using a very vital and important force in developing this infant welfare work. This section might put itself on record as expressing appreciation of the work done along this line, and as desiring to cooperate in every other way with the bureau, and expressing the opinion that this infant welfare work should come from people interested in obstetrics and pediatrics. But in this work during war time, or post war time, we must have cooperation. We have developed infant welfare work too largely from the side of the medical man and not sufficiently from the side of the sociologist. This body might go on record as stating that we believe much good could be done by incorporating in the physiolgy in the high schools and other schools of instruction simple facts of the physiology of childhood and the hygiene of the child, which would be of great value in education of the masses.

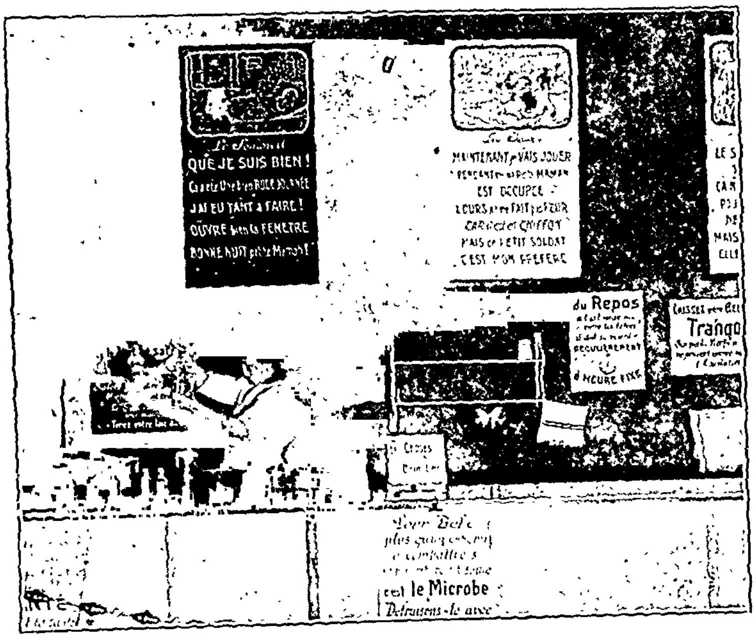

Fig. 10.—Milk demonstration at child welfare exhibit, Lyons, April, 1918.

Dr. C. F. Wahrer, Fort Madison, Iowa: I am not in sympathy with the idea that an all-wise Providence should produce a great disaster in order to make people good, but I think sometimes when we have suffered disaster it brings us together more in the bonds of human sympathy—this we cannot deny. When the Master wanted to be especially effective he took a little child and set it in the midst of them and told them certain things. This has been portrayed in a wonderful manner by those who have spoken before, and I wish only to enforce the sentiment brought out by Dr. Royster, that we must have statistics so that we can follow up these babies in later life. We must look after the welfare of the infants and children in such a manner as to produce the highest class of womanhood and manhood. In these statistics we must individualize, not generalize. What may be true of classes and masses, is not always true of the unit. In this work the profession must assist and the federal authorities must be willing, by legislation, to keep these vital statistics, that they will be not only true, but of such a character as to be of value to succeeding generations, as well as to the individual.

Dr. Francis M. Hollingshead, Columbus, Ohio: I represent the State Department of Health of Ohio and am chairman of child welfare for the National Council of Defense in the state. There are two points of view concerning this plan from the standpoint of the pediatrician. In my state we put the problem to the pediatrician in every community, either directly or through the local health department. In some of the highly organized communities we have had wonderful results, but we have also met with reaction in some localities, because the test is superficial and because it is not a thorough examination, such as we would like to have, hence the pediatrician wants nothing to do with it. If this section is going to take a stand against the present method of work, they are going to commit themselves to help in the work along other lines and to recognize that it is of sufficient value to align themselves with it. There would then be no question of the woman's committee going to them and asking them to assist in the tests. I feel that the educational value of this particular piece of work is sufficient to warrant its being endorsed by the pediatricians.

Dr. LeRoy A. Wilkes, Bridgeport, Conn.: My own criticism would be that the direction is too far away. The head of the work should be in Washington, but the work should be conducted in the communities by people whose life work is among children, and not through women's committees entirely. The women's committees should work through the departments of health, especially where they have a child welfare division. The work of the women's committees should be according to that outlined in Bridgeport—getting all the children to a central distributing agency which the child welfare division of the bureau of health would represent, and the third agency that of the physician. We divide the work into three departments, each conducted by people capable in their particular line. I do not believe in turning the whole thing over to the people who are not trained for the work, no matter how willing they are. A census of the children under 6 can be made often from the public schools, by having each pupil take to his residence a card on which the age and name of every child can be entered. This could be accomplished through the department of schools. These could be card-indexed by the Health department according to addresses and distributed to health stations in the various districts, and in this way the children reached and examined, and placed in the proper channel for treatment when necessary—that is, those who can afford it sent to a private doctor, those who cannot afford to pay for treatment sent to the public clinics.

Dr. J. P. Sedgwick, Minneapolis: These children did not show a large proportion of tuberculin reactions nor a large proportion of Wassermann reactions, as we had been led to expect. The children were in fair condition, but showed markedly the result of poor housing and poor personal hygiene. Impetigo and other skin infections were striking. This shows how much they need the care which the Red Cross is giving them.

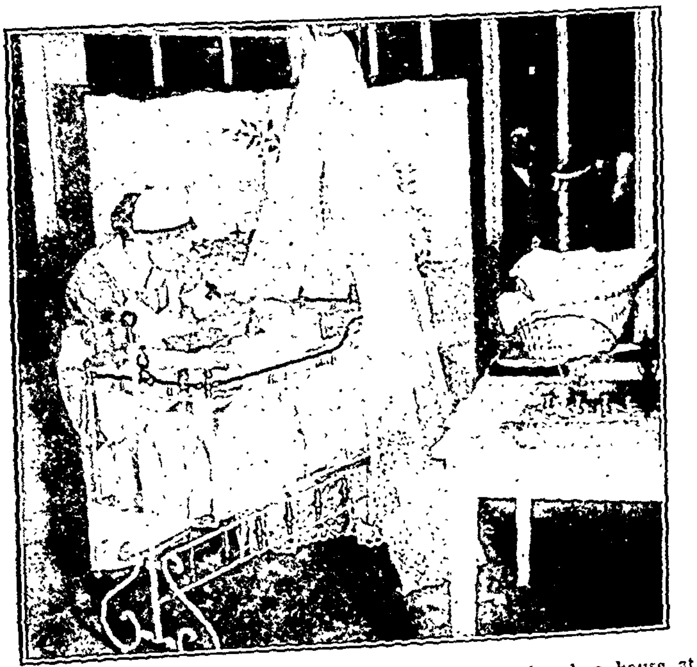

Fig. 11.—Baby washed, dressed and put to sleep in glass house at child welfare exhibit, Lyons, April, 1918.

Dr. Grace L. Meigs, Washington, D. C.: You will remember I said that I approached the subject of the weighing and measuring test with some diffidence. The Children's Bureau and I are very glad to have constructive criticism from this body of pediatricians. We are also glad to have your help and interest. In considering the weighing and measuring test, I wish you would think of the problem that faced the Children's Bureau this year. With a very limited appropriation and a very limited staff it had before it the problem of arousing the country to the fact that the welfare of children is really a war time problem. The interest of every one has been diverted to other things that have a more dramatic appeal, or seem to have a closer connection with winning the war. The experience of other countries has shown that the welfare of children is an important problem in war time and we had to get over this fact to the country.

The plan of the weighing and measuring test contemplates the expert services of physicians and nurses, but volunteer help is necessary for local organization and carrying out of plan; and so the Children's Bureau appealed to the eleven million women organized under the woman's committee of the Council of National Defense. It is only just to ourselves to say that in all of the literature sent out by the bureau we advised the committees on the weighing and measuring test to seek the help of the health authorities and physicians. We have also communicated with the physicians and health authorities asking them to cooperate. Of course in any huge campaign faults are very evident—perhaps more evident now than they will be later. When the whole campaign is a thing of the past we perhaps can tell better what the end results have been. I know I can speak for the chief of the Children's Bureau and say she will be very glad to have suggestions and help from this section of the American Medical Association.

Dr. Hoobler brought up the question of women going into industrial life and its effect on child welfare. We heard from Dr. Lucas of the great employment of women in France and its absolute necessity. Perhaps it is natural to suppose that the same necessity exists in this country at present. I think we should consider a long time before we are sure that that is the case. At present our supply of men for labor is not exhausted. Besides that we have great reserves of unmarried women. Of course, in time this country may be in the same situation as France, but we should not take it for granted that mothers of young children should be urged to work in factories at present. One of the biggest duties in this campaign is to emphasize the fact that we need the women to care for their children in their own homes. Women without these ties should undertake labor in the munition factories, etc. The greatest service of a woman with young children is usually carried out in her own home in caring for her children. The study made by the Children's Bureau in Manchester proves that this is a fact. The infant mortality rate among the babies whose mothers were employed outside of the home was much greater than of those whose mothers were at home caring for their children. That is a basic fact and I think we should remember it in all our thoughts on this subject.

Dr. William Palmer Lucas, San Francisco: I just want to say a word or two, following up what Dr. Meigs said, about the necessity and type of child welfare work to be done during the war period. Experience is the best teacher, and we all of us are idealists and would like to do things in the very best and most ideal way. Unfortunately, owing to existing conditions you have to adopt methods that will bring results. I have talked with members of the Children's Bureau and others working along this line. I think they are fully aware of the criticisms that have been made. But what they are after definitely and concisely is to get the public eye on a certain definite problem. We know under modern methods things can be brought to a focus pretty rapidly in this country, and what Dr. Meigs has said along that line is true. I feel from a medical standpoint, as I have watched (if you will allow me to say so) my own development along these problems, that one of the weaknesses of myself was the lack of appreciation of the social and economic problems that enter into big medical problems. I think what Dr. Porter said is very true. The educational side of child welfare has been neglected, not only by educational departments of medical schools, but by the schools at large. That is one side which we must develop more and more. I feel that the physician of today must study social and economic problems. One of the biggest and most successful workers in preventive medicine said to me "the one thing I feel the medical profession as a whole is missing in attempts at preventive medicine is a realization of the economic problem. In my attempts at directing communities, countries and nations to the importance of their health problems, I am directing them more and more through economic avenues." I think that is well worth study. The more we study economic conditions and social problems the more advance we will make in the reduction of infant mortality. We are specialists on the medical side, and we must not feel that because there is a sociologist studying the problem from an economic or social standpoint that his judgment is not to be regarded of the same value as our own. He undoubtedly regards the medical viewpoint in the same way as we do the economic. The sooner we get on common ground and discuss the problem, the sooner we will come to conclusions. Writing letters, discussing from long distance, never affords a solution so quickly as meeting the person directly and facing the problem together.

There is a saying in France which is common in all military circles. It was first started by the publication of a book, whose title is "Carry On." Probably no two words are used more frequently over there. If we could adopt a motto for our babies, we would arrive at a very good conclusion.

Dr. Laurence R. DeBuys, New Orleans: We should benefit by the experiences of some of the departments located in Washington. For instance, Dr. Davis, chief statistician for the Department of Vital Statistics, informed me the other day that it would take a number of years for that department to accomplish anything without the nation standing behind it. To date only 31 per cent. of the area in the United States registers births and about 60 per cent. registers deaths. This is just an example of what might be expected with individual efforts. Are we to continue with individual efforts in this great problem of the conservation of child life or are we to appeal to the government for federal aid? The conservation of child life should be a war measure. Are we to send all our pediatricians abroad to assist in the conservation of child life there? or, Are we to have our pediatricians, appreciating the pressure made on them, go into the Reserve Corps and forego their positions and responsibilities in their various communities? or, Are we to keep our pediatricians here to assist in conserving the lives of our own infants for the future strength of the nation, and not permit our country to approach the present conditions you have had portrayed to you here today existing in some of the warring nations? The vital problem is to save lives now. As to who shall direct the work? We all know that the problem is an economic one, we also know that the question of conservation of infant life is a medical one. With whom should the consideration of this problem be left? It seems to me that it is a federal problem, yes, a war measure, and that the pediatrician who has given his life to this work should at least be a consultant, if not a director.

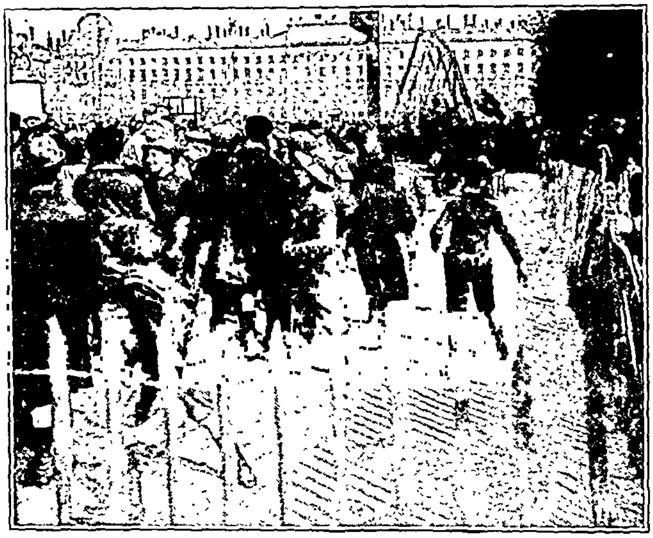

Fig. 12.—Playground in front of child welfare exhibit of the American Red Cross, Ministry of the Interior, Ligue contre la mortalité infantile, at Lyons in April, 1918.

liter or more was withdrawn slowly by means of a Potain aspirator. The fluid was examined bacteriologically both by smear and culture. If, as was usually the case, the fluid was serofibrinous and contained hemolytic streptococci, the patient was kept on medical and expectant treatment according to the general plan as outlined in the section of this report that deals with the medical features of the question. A careful watch of the patient was maintained by repeated physical examinations, and as soon as there was evidence of a reaccumulation of fluid to any marked extent another aspiration was carried out. As a rule, aspirations were made at intervals of from two to six days, and on an average about four aspirations were made on each patient. Usually by the time of the fourth aspiration a period of from two to three weeks had elapsed, the character of the exudate had changed from a thin, almost transparent, serofibrinous fluid to definite pus, well. Two of our patients suddenly developed a spontaneous pneumothorax and required emergency operations because of the presence of alarming symptoms from mechanical interference with the mediastinal structures.

The origin of the spontaneous pneumothorax in this type of case has been a matter of some interest to the commission because the condition is one of the most alarming and dangerous of the sudden complications which arise. We have observed it also in a few cases which did not belong to our series of twenty-three cases. We feel that the most probable explanation is the sudden rupture of a peripheral abscess of the lung. Small abscesses, often multiple, at the periphery of the lung, have been found repeatedly at necropsies in those streptococcus cases. Whether some of them may be inoculation abscesses caused by puncture of the lung with the aspirating needle is a point to be considered.

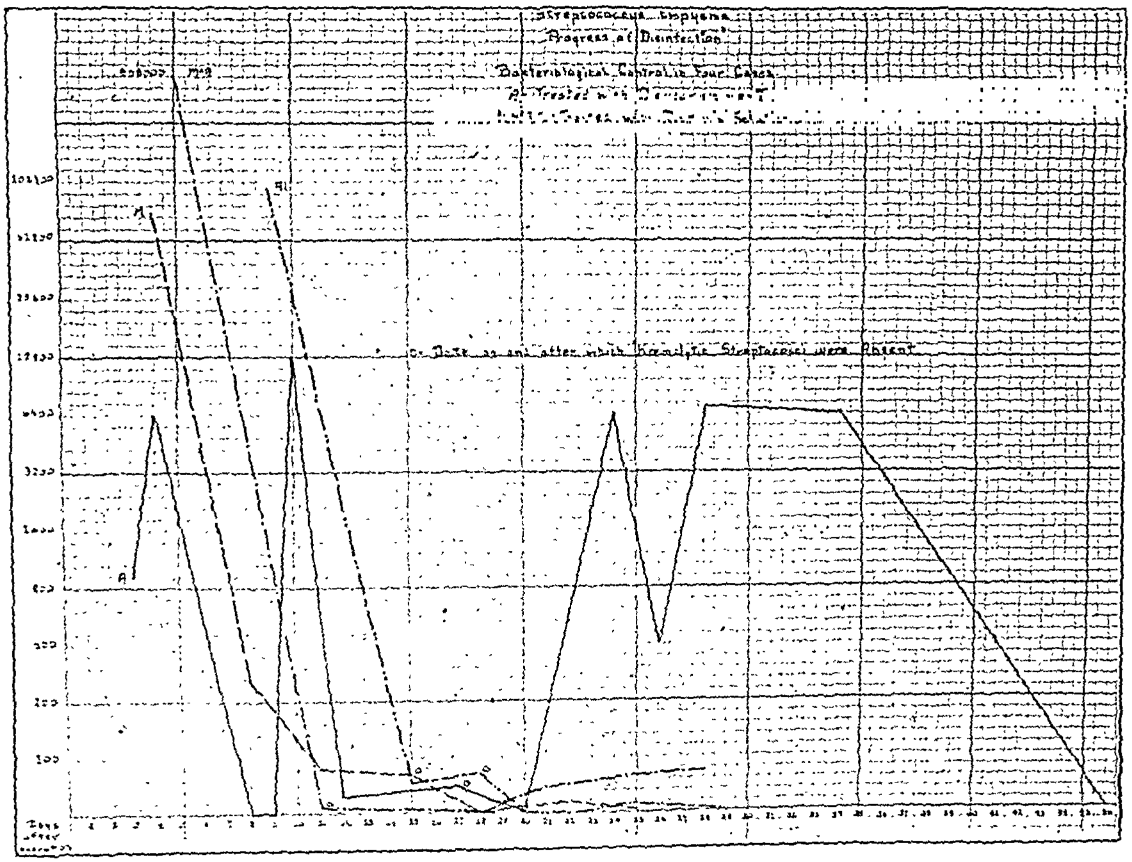

Fig. 3.—Bacteriologic control in four favorable cases of streptococcus empyema treated with chlorin antiseptics. The numbers on the left are the colonies on plate cultures prepared with one loop of secretion.

the pneumonia had improved markedly, and the patient's general condition was incalculably better, as shown by a drop in rate of respiration and pulse, the disappearance of the cyanosis and acute air-hunger, and a fall of 2 or 3 degrees in the temperature. Occasionally it happened that aspirations were performed at intervals of only twenty-four hours when the fluid reaccumulated rapidly. In three cases (13 per cent.), operation was found to be unnecessary because of failure of the exudate to reappear after aspirations. One of these had only one aspiration, at which 600 c.c. of serofibrinous fluid, containing many streptococci, were withdrawn. The patient is now entirely well, and no difference can be made out between the two lungs on examination either with the usual physical methods or the roentgen ray. In another case, complicated by multiple arthritis, the patient appears to be entirely well except for a recently acquired chickenpox. The third patient is now free from fever and is practically

SUMMARY OF A TYPICAL CASE

Private D., aged 27, was admitted to the base hospital, April 11, with intense stabbing pain in the left lower chest on inspiration.

April 12, marked cyanosis and dyspnea were present with maximum temperature of 102.4, pulse rate of 128, and respiration of 38. Evidence of fluid was present; 1,500 c.c. of thin serofibrinous exudate containing hemolytic streptococci were removed by aspiration from the left chest.

April 15, 1,500 c.c. of slightly cloudy fluid were removed by aspiration. Dyspnea and cyanosis were still marked, but the patient was much relieved by aspiration.

April 17, 800 c.c. of slightly thicker and brownish (old blood) fluid were removed by aspiration. The patient was still in a very serious condition, but improved. The heart was no longer displaced.

Between April 17 and April 22, the patient continued to show improvement, although at times the pulse mounted to as high as 140, the respirations to 60 and the temperature to 102.4. During this time, however, he felt much better, his dyspnea had improved, and there was no evidence of the reaccumulation of a large amount of fluid.

April 27, there was definite evidence of reaccumulation of a moderate amount of fluid. The patient's general condition was much improved. Cyanosis and dyspnea were gone.

April 28, the patient's temperature was 98.8, pulse 112, and respirations 20. Resection of the ninth rib in the scapular line was performed under procain anesthesia, and about 500 c.c. of slightly greenish, frankly purulent exudate were removed. Carrel-Dakin treatment was started, 100 c.c. of 0.5 per cent. sodium hypochlorite every hour.

May 8, the amount of sodium hypochlorite was reduced to 50 c.c. hourly. The patient had been in excellent condition since the operation.

June 2, the Carrel-Dakin treatment was discontinued.

June 10, the wound was completely healed. The patient had been up and around the ward for the last two weeks.

By May 13, cultures and smears from the wound revealed no more hemolytic streptococci, and sterilization was practically complete.

so that at times there is difficulty in speaking. There are drenching sweats. The ears, lips and extremities are cold and cyanotic. The temperature is irregularly elevated, but at times may drop below normal, while the pulse and respirations remain rapid. The pulse is often very weak in contrast to the bounding pulse seen in lobar pneumonia. The abdomen is not distended, and the spleen is not usually palpable. On the other hand, the patient with a large effusion and little lung involvement furnishes an entirely different picture. If not delirious he is quiet and does not like to be disturbed, and very often he is drowsy and hard to arouse. The respirations are rapid and may be somewhat labored, but are not nearly so distressing as in the extensive bronchopneumonias. In other details the general picture is the same. Other cases may combine the features of the two types described above. In this group the patient has an extensive pneumonia with a large effusion, and delirium, restlessness and dyspnea may be marked.

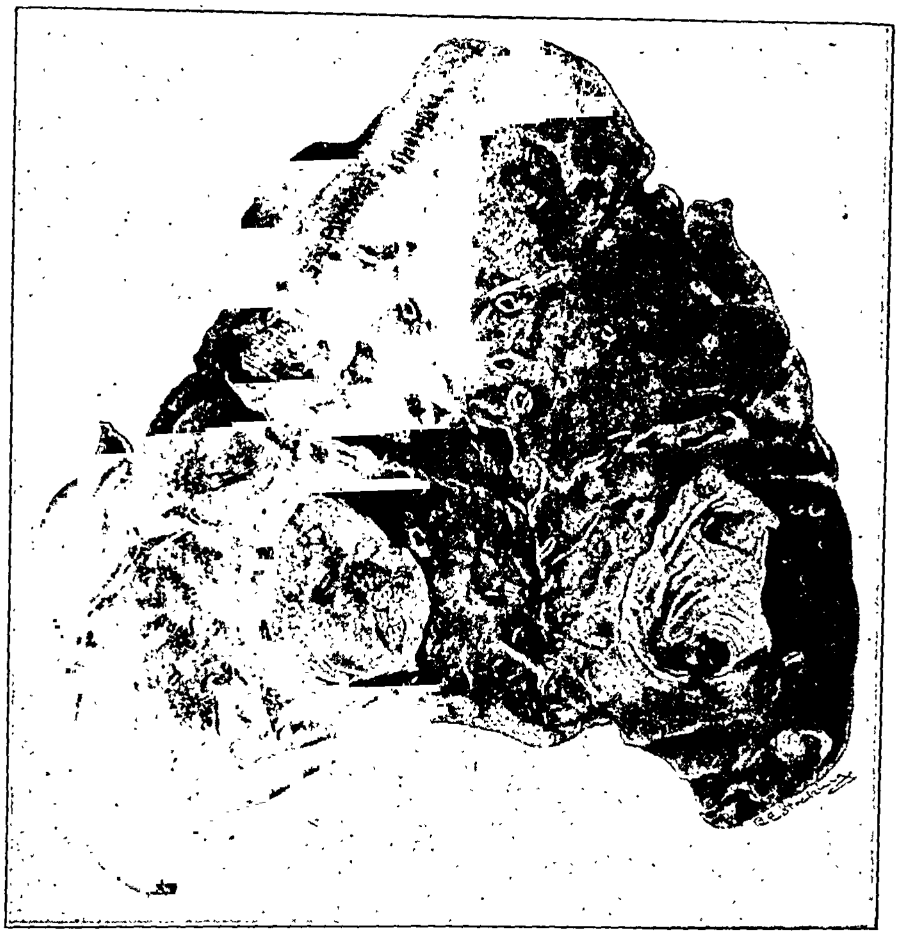
Fig. 5.—Large pulmonary abscess complicating streptococcus empyema.

Any type of case would be a bad operative risk early in the disease. The patients with bronchopneumonia usually recover by lysis. An afternoon temperature as high as 100 F. may persist for weeks, and there may still be considerable expectoration long after the subsidence of other symptoms. The physical signs disappear very slowly; râles, dulness of percussion note, and altered breath-sounds persisting for weeks. In favorable cases the patients with effusion improve gradually as they slowly gain headway in combating the infection and, assisted by aspiration, eventually reach a point at which they become good operative risks.

The sputum is usually thick, tenacious, mucopurulent, and may or may not be blood-streaked. Smears show many pus cells and a large number of cocci, often in chains. At times there is phagocytosis of the cocci by the leukocytes. A hemolytic streptococcus is usually isolated when cultures are properly made.

At Camp Lee, daily cultures could not be made, but at least one was made from each patient and sometimes several. In this series of twenty-three only one positive blood culture was obtained before operation.

In practically all of the cases there was a leukocytosis of from 12,000 to 32,000, with an average of about 20,000. The acute cases showed a polymorphonuclear neutrophil count of from 75 to 85 per cent., a small mononuclear count of from 5 to 10 per cent., and a large mononuclear and transitional count of about 10 per cent. In the cases in which pus had been overlooked for a long time there was a leukocytosis of from 12,000 to 16,000, with a polymorphonuclear count of from 60 to 70 per cent., a small mononuclear count of from 16 to 32 per cent., and a large mononuclear and transitional count of about 10 per cent. In the acute cases there was no pronounced anemia but where pus had been overlooked for three or four months there was a marked secondary anemia. In one the red blood count was 2,880,000. The blood platelets were about normal in number.

The urinary output in the very sick patients was decreased, probably because of the drenching sweats and diminished fluid intake. The urinary findings were those common to all severe infections, namely, albumin, and hyaline and granular casts. Red blood cells were found in some instances. Bile was rare.

Heart complications have been frequent. In the series of twenty-three cases there was one extensive suppurative pericarditis confirmed at necropsy, and two of fibrinous pericarditis in which the patients recovered. The myocardium also is damaged. Acute dilatation of the heart is liable to occur on exertion, and therefore prolonged rest in bed with cautious return to normal activities is advisable. Often a tachycardia has persisted for many weeks.

These bronchopneumonia patients are prone to develop lung abscesses. When the clinical picture is considered in connection with the pathology it seems probable that some of these patients will develop a bronchiectasis as an end-result. This series is too small to consider all the complications that might arise, but suppurative otitis media and nonsuppurative multiple arthritis have been observed.

In spite of the fact that a fairly typical picture is usually presented, the differential diagnosis is at times difficult. A careful history, a physical examination, a bacteriologic examination of the sputum, a fluoroscopic examination, a roentgenogram of the chest, and finally, exploratory aspirations are the means at one's disposal in making a correct diagnosis. The physical signs are those usually described as occurring in bronchopneumonia and in pleural effusions. However, the differential diagnosis between a massive consolidation and a pleural effusion is not always easy. Percussion and palpation under such circumstances are by all odds the most reliable physical signs, but should be supplemented by roentgen examinations and exploratory aspiration. In passing, two cases might be mentioned in which there was dysphagia and a unilateral dilatation of the superficial veins of the chest due to an extensive pyopneumothorax.

Careful treatment and nursing accomplish much for the very sick patients. The free administration of fluids either by mouth, rectum, subcutaneously or intravenously is of the utmost importance. In desperate cases good results have been obtained by giving 25 per cent. glucose solution intravenously, 500 c.c. instilled during a period of three hours. For restlessness, pain or insomnia, or exhausting cough, morphin is indicated. Atropin and inhalations of steam at times relieve the marked respiratory distress. Cold, irritating air aggravates the cough, but good ventilation is essential.

The illness is usually a protracted one associated with marked loss of weight, and the maintenance of nutrition is correspondingly important.

SURGICAL TREATMENT

I. *Anesthesia.*—Local anesthesia with a 0.5 to 1 per cent. solution of procain was used in all the primary operations. In secondary operations, ether was occasionally used, sometimes exclusively, at other times to supplement the local anesthesia. Two methods of inducing local anesthesia were employed: (1) infiltration of the whole field of operation beginning with the production of a small skin wheal by the use of a hypodermic needle and syringe, and (2) supplementing the local infiltration by blocking the appropriate intercostal nerves in the subcostal grooves close to the spine. This procedure greatly facilitates the operation and minimizes the amount of infiltration at the site of operation. For the simple operation of intercostal thoracotomy or resection of a portion of one or two ribs, procain has always been found to give satisfactory anesthesia when properly administered. No occasion has so far arisen for such extensive secondary operations as the Estlander, Schede or Delorme, but it is possible that later it will be necessary to perform operations of this general nature in some of the old cases with large, persistent cavities. In these, intratracheal anesthesia will undoubtedly be appropriate.

II. *Incision.*—1. Site. This should be chosen with reference to providing good drainage in both the recumbent and the erect posture. A careful physical and roentgen examination should immediately precede the operation to define as accurately as possible the most suitable point at which to open the empyemic cavity. In most instances, this proved to be in the eighth intercostal space, just behind the posterior axillary line; but the selection of this site cannot be laid down as a rule. The needs of each case must be considered separately.

Care should be taken to make allowance for any displacement of the soft parts overlying the ribs due to the position of the arm during the operation in order that the alinement between the different layers of the chest wall shall be perfect when the arm is in natural positions.

2. The incision itself should be of ample length to give access to the underlying structures. One from 2 to 4 inches long has been found satisfactory. The muscular and fascial structures are divided as exposed, and the incision through the pleura is made usually in the intercostal space, though frequently in the secondary operations, resection of a portion of one or more ribs is advisable. It is best not to suture the incision.

In cases that have drained for varying periods of time and drainage has become difficult or very incomplete, the procedures to remedy these conditions must vary according to the nature of the case. Among such conditions are: (*a*) sinuses having a direction or size rendering proper drainage impossible or precluding appropriate treatment of the cavity; (*b*) cases in which premature closure of the sinus had been permitted, with a recrudescence of the empyema, and (*c*) cases in which a rigid walled sinus has formed, possibly with a continuous epithelial lining.

III. *Drainage.*—The importance of good and continuous drainage, not only immediately after operation but also throughout the postoperative treatment of the cavity, cannot be overestimated. Provision to accomplish this end should be made at the operation.

If simple drainage tubes are used, they should be of the largest practicable size. They should also be sufficiently long to enter the pleural cavity, but should not project far into it.

Two devices that have proved serviceable may be specially mentioned:

(*a*) A double-barreled rubber drainage tube of large caliber, deeply fenestrated at the center and the two halves brought together and held in parallel position with a safety pin. When inserted into the wound, this serves the purpose of drainage and also permits the introduction of Carrel tubes through its lumina without obstructing the outflow of the discharge or the reflux following the instillation of Dakin's solution.

(*b*) An arrangement of tubing and bottles designed to drain the cavity with the aid of suction and to instil Dakin's solution at will without disturbing the dressings. This arrangement is made clear by the accompanying drawing, but may be briefly described (Fig. 1).

In order to apply suction to the empyemic cavity it is necessary to exclude air. This is done by passing the drainage tube through a small hole in a piece of rubber dam about 4 inches square, the edges of which, after packing the wound around the tube with gauze, are firmly attached to the skin with broad bands of adhesive plaster. The drainage tube should be long enough for convenient attachment to the rest of the apparatus by means of a T-tube of glass.

One branch of the T-tube is connected with a reservoir for Dakin's solution, the other to a pair of aspirating bottles, a small bottle intervening to collect the discharges. The connections are all made with rubber tubing, and, by alternately clamping and freeing these branches, it is possible to apply moderate suction or Dakin's solution at will.

The purposes served by this apparatus are:

1. The collection of the discharges in the bottle provided for their reception, thus obviating the necessity of changing the dressings.
2. Encouragement of expansion of the lung.
3. Early application of antiseptic treatment to the cavity after operation.

POSTOPERATIVE TREATMENT

All the cases coming under the care of the commission received treatment with some member of the chlorin group of antiseptics. Of these, neutral solution of chlorinated soda, 0.5 per cent. (Dakin's solution) has given the best results. Dichloramin-T, 5 per cent., in chlorcosane, was used in several cases. Chloramin-T in from 0.5 to 1 per cent. aqueous solution was also occasionally used for irrigation, but appeared to offer no advantages over Dakin's solution. The following is an outline of the treatment with Dakin's solution:

There is a complete change of all dressings and tubes once daily. In the interim, Dakin's solution is instilled in definite quantities at regular intervals, according to the usual Carrel technic, strict attention being directed toward the maintenance of asepsis in all the manipulations:

1. After the removal of the old dressings, the skin is cleansed, first with a dry sterile gauze sponge, and then with one moistened with alcohol.
2. With the aid of a catheter (22 French) introduced into the empyemic cavity, this is irrigated with Dakin's solution flowing from a moderately elevated reservoir until the return is perfectly clean. During this irrigation the patient is directed to change his position to facilitate the flushing of all parts of the cavity, and finally to assume that position which most favors the outflow of any residual fluid.
3. From one to four carrel tubes are introduced into the cavity, the lengths of these and their disposition being governed so as to insure the application of Dakin's solution as far as possible to all parts of the cavity. When this is particularly difficult, a stylet of silver wire (gage 24 to 27) within the tube aids in its direction and retention in a suitable position. Occasionally recourse may be had to the roentgen ray to determine the position of the tubes. The free ends of the Carrel tubes are fixed by means of a strip of adhesive plaster in some position convenient for future instillations of solution, usually in the region of the shoulder.
4. A fenestrated drainage tube, guarded by a safety pin, is introduced alongside the Carrel tubes to insure drainage and a reflux after the instillations of Dakin's solution.
5. The skin in the vicinity of the wound is protected from the irritating action of the solution by strips of gauze impregnated with petrolatum and sterilized in an autoclave. If any portions of skin beyond the limits of this protective covering begin to show signs of irritation, they are treated with a stiff zinc ointment or a thick layer of petrolatum.
6. If there is any extensive area of granulations around the tubes entering the wound, this is covered with gauze moistened with Dakin's solution.
7. The underlying parts are protected from pressure of the safety pin guarding the drainage tube by gauze encircling the tubes.
8. Fluffs of dry sterile gauze are placed over the wound and adjacent parts, and the dressing completed with an absorbent pad and a firmly applied binder.

Sterile rubber gloves are worn, and all tubes and dressings, except the absorbent pad and binder, are handled only with instruments sterilized before use at each dressing.

The ends of the Carrel tubes project above the binder holding the dressing in place. The total amount of Dakin's solution introduced into the cavity at each instillation is distributed equally among these tubes, each being successively connected with the graduated reservoir of solution. The amount of Dakin's solution admitted to the empyemic cavity at each instillation is governed by the size of the cavity, but does not exceed 200 c.c. If the cavity is not too large, the quantity is usually about half its capacity. The interval between instillations is at first one hour during the day and three hours at night. According to the progress attained, these quantities and intervals are modified to suit the needs of individual cases.

Great care should be exercised to protect from infection all those who come in contact with the patients and to prevent the scattering of the organisms as much as possible. Gloves, gowns and face masks are worn by the surgeon, nurses and ward attendants during the dressings. Precautions are taken to prevent the patient from spraying pus from the uncovered wound by coughing, and all soiled dressings are immediately disposed of by being placed in suitable receptacles.

During the course of this treatment, the discharges undergo modifications readily observed at the dressings. Any foul odor is speedily abolished, and the amount of pus diminished. With the disappearance of the pus, particularly in cases of long standing, the discharges frequently become viscid and resemble uncooked white of egg. This has been attributed to the presence of products arising from the action of the hypochlorite on the fibrinous deposit on the pleural surfaces. Its occurrence is transitory, and with its disappearance the discharges become very scanty and the return on irrigation is usually clean from the beginning, but toward the end of the irrigation may be slightly tinged with blood modified in color by the action of the hypochlorite. At this stage of the treatment, plate cultures made from the secretions within the cavity are frequently sterile.

Dichloramin-T dissolved in chlorcosane has been used in a considerable number of cases, in a very few to the exclusion of all other antiseptics. Experience has shown that notable quantities (in one of the cases at Camp Lee, 200 c.c.) of a 5 per cent. solution can be introudced into an empyemic cavity without untoward consequences. In one instance in which it alone was used to treat a recent case, sterilization proceeded with a rapidity comparable to that following the use of Dakin's solution. Nevertheless, observation appears to show it to be less effective than Dakin's solution, particularly in cases of long standing, for the following reasons:

1. The viscosity of the solvent militates against its distribution within the empyemic cavity so that good contact with all parts requiring disinfection is more difficult to attain and more uncertain than when the aqueous Dakin's solution is employed.
2. Dichloramin-T has but little, if any, favorable action toward the dissolution of fibrin. Curdy masses, often of considerable size, are frequently observed in the discharges. These have proved to be compacted sheets of fibrin, evidently detached from the pleural surfaces, but showing no signs of disintegration or the influence of a solvent action. These masses render drainage difficult and often completely arrest it.
3. Prolonged action of the solution on the skin has proved it to be fully as irritating as Dakin's solution. This may be due in part to decomposition of the solutions before use, but must nevertheless be taken into consideration.

The chief advantages in the use of dichloramin-T in these cases appear to be simplicity of application (once daily) and economy in dressings.

In protracted cases, it has frequently occurred that the sinus leading to the cavity was unfavorable for irrigation because of its small size or unfortunate direction. Under these circumstances it is often possible to aspirate the secretions through a soft catheter which finds its way to the dependent portions of the cavity. Suction may be conveniently applied with a bulb syringe holding about 1 ounce. After such evacuation of the cavity, dichloramin-T may be introduced through the catheter. Although this procedure is by no means comparable to securing an opening into the cavity, permitting free irrigation, it has been of aid in the treatment of difficult cases.

The plastic closure of empyemic cavities after cleansing and disinfection with antiseptic solutions is a procedure requiring great caution. In recent cases that have reached this condition soon after operation, the lung very frequently expands spontaneously so as to obliterate the cavity, and there need be little hesitation in permitting the sinus to close under ordinary precautions against infection. But when the lung fails to expand spontaneously, a careful consideration of the causes underlying this failure, some of which may involve risks of a recurrence of the empyema, should precede the decision regarding operative closure of the sinus.

It has been surprising in several cases to note the remarkable speed with which the cavity has diminished in size or has become obliterated after sterility has been accomplished with Dakin's solution. This has been especially evident in cases in which the interval has not been too long between the operation and the beginning of the use of the Dakin solution. But it has also been observed frequently even in cases in which there had been a long interval, and it has been so impressive that we feel that extensive secondary operations for obliteration of a cavity are unwarranted until after a prolonged trial with the sodium hypochlorite solution has been carried out. Auxiliary measures of great importance which should be instituted simultaneously to aid the expansion of the lung are: (1) blowing against resistance; (2) the use of a valve on the end of the drainage tube to allow egress of discharges but to prevent entrance of air into the cavity (Fig. 2); (3) gentle suction devices, and (4) properly controlled general exercise to incite a more active metabolism, and increased respiratory effort.

Before performing even minor secondary operations on drainage cavities, it has been our invariable custom to submit the patient to a roentgen examination both by fluoroscope and by stereoscopic plates. The object of this examination is to obtain as much information about the cavity or sinus as possible as regards its location, extent and contour. We have found neutral thorium nitrate in 10 and 15 per cent. solutions of use in outlining the cavity. It appears to have a slight irritating action, and sometimes a little bleeding occurs after its use.

In two cases of pleuropulmonary fistula we have used Rutherford Morison's B. I. P. P. (bismuth, iodoform, liquid petrolatum,), but these do not warrant any conclusions.

(To be continued)

The Children's Year Campaign.—The facts brought out by the national baby test, conducted by the Children's Bureau, are of interest. It is estimated that already about 6,000,000 children of less than 6 years of age have been weighed and measured, and every state and territory in the Union has been represented in the campaign. A bulletin for mothers on "Child Care" has recently been issued, dealing with the physical defects of children between the ages of 2 and 6, and teaching the mothers to recognize these symptoms and to understand the simple laws of hygiene. The "little mothers" of our large cities, whose playtime is wholly absorbed by the care of their younger brothers and sisters, the boys and girls who carry heavy bundles about our city streets, and the farm children, who are often required to work in fields and gardens too long a time under a blazing sun, are frequently stunted in their development during the years of growth when rest and play are their most important requirements for good health. In calling the attention of parents to this flagrant example of child labor, the Children's Bureau points to the fact that if a child in his growing years is made a beast of burden, in maturity he almost inevitably joins the ranks of the physically unfit and becomes a serious factor in racial decay.

RECONSTRUCTION AND REHABILITATION OF THE TUBERCULOUS SOLDIER

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Much has been said and done in this great war concerning the reconstruction and reeducation of the crippled soldier, but it must be remembered that reconstruction, in perhaps a less spectacular way, applies to medical cases as well. We should not forget, in our zeal to assist the wounded soldier in returning to useful employment, that his less fortunate comrade who becomes stricken with disease may need the same helping hand. The one that presents the most difficult problem is the ill-fated consumptive. No tokens of bravery or emblems of the hero are pinned on him, although the fact that he has broken down with tuberculosis means he has given every ounce of resistance to his country's cause.

It is well known among sanatorium physicians today that the ultimately bad result in the treatment of tuberculosis is usually due to the perfunctory way in which patients are discharged from institutions. They are carefully treated for six months or a year, and then all responsibility for them ceases and they are turned out to assume their places in normal life without any further assistance or supervision. The treatment is only partly completed, and this part is often wasted by relapses. In other words, the reconstruction and rehabilitation of the consumptive is badly neglected.

There are a number of reasons for this. In the first place the reconstruction phase of the treatment presents a difficult problem. Prolonged rest, so essential in the treatment of active cases, naturally leads to laziness. We start out with a sick consumptive and end up with a well loafer. In the Army we receive a tuberculous soldier and discharge a hospitalized pensioner. These patients do not want to be rehabilitated. Indolent and indifferent, they prefer to remain dependent on their people or the government. The harmful results of exercise in tuberculosis when employed too early, and the absence of any safe indication as to when exercise should be begun, cause this stage of the treatment to be postponed and the patient finally discharged without it. Then again, when a patient becomes an arrested or quiescent case, he usually leaves the sanatorium before the hardening up process is completed and his cure thoroughly tested. The idea that a patient cured in one climate cannot live in another is due to the fact that he goes west, becomes an arrested case, and returns home to work without hardening up. Even when discharged after a period of graduated exercise, he goes back to his former occupation without any further medical supervision, and without any gradual transition from partial to complete working ability having been arranged. The fact that he is a consumptive often excludes him from employment and further complicates the question of rehabilitation.

The four most important factors in the treatment of tuberculosis, I should say, are rest, fresh air, nourishing food and psychology. To be able to outline to the patient the plan of treatment leading up to reconstruction and rehabilitation and to keep that constantly before him will have a wonderful physical effect. It will stimulate hope and desire for recovery, secure his confidence and cooperation, and save him from laziness and dependence. When the patient reaches the stage of treatment that permits him to sit up and be on his feet, some light mental and physical work will help to occupy his mind and prevent him from becoming introspective. The thought that this is a promotion and is the beginning of his climb to complete restoration and usefulness will have a most excellent mental result. A note of warning should be sounded, however, to the overenthusiastic reconstructionists lest they begin their methods too early in the case in which absolute rest, both mental and physical, is required. Vocational reeducation and training must not be in the nature of a surrender of the principles of treatment to the nervous and irresponsive patient who desires to work too soon. The necessity of reserving strength and nervous energy should never be lost sight of, and when in doubt it is often better to err on the side of too much rest. The exact time to begin reconstruction work will tax the ingenuity of the best sanatorium physicians. No fixed rule applies to every patient, for aside from normal temperature and abatement of symptoms, the peculiarities of each individual case must be taken into consideration.

The principal reason that warrants my presentation of this paper is nine years' clinical experience in handling tuberculous soldiers at Fort Bayard, N. M. According to the methods taught by Colonel Bushnell, our commanding officer, these men received most excellent treatment; but regulations with reference to return to duty and discharge of tuberculous soldiers, together with their pension rights, made attempts at reconstruction and rehabilitation very difficult. Even the small percentage returned to duty, after being hardened up by graduated exercise and work under medical supervision, were sent back to their organizations where they were shown no special dispensation commensurate with their condition and were no longer under medical control, but instead were looked on with suspicion by their company officers and were recommended for discharge or further treatment at Fort Bayard the first time they went on sick report. Patients not returned to duty were discharged from the army, but this did not necessitate their leaving the hospital. They could remain as beneficiaries of the soldiers' home as long as treatment was required. Yet there was no authority for holding them, and as soon as they received their discharge or were examined for pension, they usually left the hospital regardless of their condition and the stage of treatment. They went against the advice of their physicians and before any reconstruction methods could be applied. As the usual pension allowance would not permit them to live in comfort on the outside, they had two courses to follow: either work, or spend most of their time in soldiers' homes. Many chose the latter, but others undertook to work without having first tested out their cure. Seldom could they select their employment, and often they had to work under unsuitable conditions. As a result, most of them relapsed and either died or returned for treatment. The soldiers' home chronics led a lazy and dejected existence, their one ambition generally being increased pension. A certain number, however, when able, were given employment at the post, in the laundry, post exchange, dairy, in the farms and in the gardens, and, although working, were under the same restrictions as the other patients. Enlisted men of the Medical Department were usually returned to duty at Fort Bayard and were carefully watched. Officer patients were frequently placed on duty at the hospital before joining their commands. My impression was that these patients were more contented and did much better than those who, after becoming quiescent, did nothing or left the institution.

The new arrivals and very sick patients gave very little trouble, but the convalescent class or ambulant patients were constantly getting into mischief. Continual vigilance was necessary to prevent gambling, drunkenness, the introducing of liquor, etc. Patients went "absent without leave," and there was a tendency to fault finding and discontentment. Everything was done to prevent this by supplying various forms of amusement and entertainments. Prescribed distances to walk were seldom carried out. At one time vocational training was suggested; but as none volunteered for the work, it was never introduced.

A series of conditions, over all of which no one had control, made the reconstruction part of the treatment unsatisfactory. These men were taught to rest, this was preached to them day in and day out; the physician could make them no definite promises about future employment; they listened to the discouraging experiences of returning patients, and they also heard plenty of pension talk, so that when the time came for reconstruction the proper incentive for wage earning was lacking. While I believe these ambulant patients would have been happier and more contented and their morals improved if their time between rest hours could have been occupied in vocational training and education, to have successfully introduced such a system then would have been doubtful. For the success of such a program three things would have been necessary: work shops, incentive to work, and the assurance of suitable employment. Work shops could have been obtained if it could have been proven that the end justified the means; but incentive to work was only partial, and suitable employment very uncertain. I mention the Army's past experience at Fort Bayard not only to emphasize the difficulties to be encountered in reconstructing the tuberculous soldiers, but also to show the need of this phase of the treatment. I believe vocational training, if introduced as a real future and not a sham for the patient, will change the whole atmosphere of the tuberculosis hospitals, making them more popular and easier to administer. In our campaign against tuberculosis we must educate the public that the careful consumptive is not a menace to his associates; that he is not to be treated as an outcast and a leper, and that a conscientious effort must be made to provide him suitable employment.

RECONSTRUCTIVE POLICY OF THE SURGEON-GENERAL'S OFFICE

The policy of the Surgeon-General is to transfer all tuberculous soldiers to Army tuberculosis hospitals and not discharge them until they become arrested and reconstructed cases, or until they have obtained as complete recovery as can be expected. To this end eight hospitals are now in operation, or under construction in various parts of the United States. These hospitals are located at New Haven, Conn.; Otisville, N. Y.; Markleton, Pa.; Azalea, N. C.; Waynesville, N. C.; Denver; Fort Bayard, N. M., and Prescott, Ariz. When completed they will accommodate more than 6,000 patients. They all embody the modern ideas of sanatorium construction and demonstrate that no expense has been spared by the government to provide the best of treatment for tuberculosis soldiers. Five of these hospitals are in operation and are rapidly filling with patients. The policy of the Surgeon-General is to transfer the sick to hospitals nearest their homes. In case tuberculosis develops overseas the patients will be returned to the United States.

If left to the soldier whether he prefers discharge to treatment in a tuberculosis hospital, he will almost invariably choose the former, and after discharge it is rarely that he will voluntarily submit to sanatorium discipline, so it has been deemed wise to order all to tuberculosis hospitals. Here they can be taught how to take care of themselves and be given proper treatment. The success of these hospitals, although carefully planned and constructed, will be a failure unless the right kind of medical officers is secured to administer them. We are endeavoring to obtain suitable officers for such positions, and are training others at the U. S. Army General Hospital, New Haven, Conn., where we have established a school for this purpose. In fact, all medical officers selected for the staffs of Army tuberculosis hospitals are required to take a course at this school in order to standardize methods of treatment and administration.

While the Tuberculosis Section of the Surgeon-General's Office has general supervision over all Army tuberculosis hospitals, the reconstruction work will be instituted and carried out by the Reconstruction Division. This assigns officers trained and skilled in this specialty, together with instructors and assistants, to each hospital, and builds work shops for the vocational training. It might be added that not only will the educational work in these hospitals be in the nature of vocational training, but also emphasis will be laid on training the patients in hygiene, home and shop sanitation and methods of proper living, with the view of preventing recurrences. A bill now before Congress provides that after a patient is discharged and returns to civil life, the Federal Board of Vocational Education will attend to his further rehabilitation. I believe it is the policy to utilize, in an advisory capacity, the services of this board, while the patient is still under military control.

Thus the Surgeon-General proposes to carry the tuberculosis soldier to the point at which his disease is arrested and he is hardened up ready to return to work. The Federal Board of Vocational Education will then receive him and look out for his welfare as far as employment is concerned. The Bureau of War Risk Insurance of the Treasury Department attends to the financial side, for as soon as a tuberculous soldier is discharged, provided his disability is in line of duty, he is entitled to compensation and, if insured, war risk insurance. The amount of compensation is based on the degree of disability, and in order to encourage rehabilitation, reeducation and vocational training, it is provided that no reduction in the rate of compensation shall be made for individual success in overcoming the handicap of a permanent disability. It is also stipulated in the bill now before Congress that the Bureau of War Risk Insurance is to have the power and duty of ordering suitably discharged men "to follow such course of vocational rehabilitation as the Federal Board of Vocational Education shall prescribe and provide."

It is believed that most patients with arrested cases of tuberculosis can return to their former occupations, except those employed at hard manual labor, very dusty trades, mining, etc. It is not always necessary that they should work outdoors, but they should be employed and live under sanitary conditions and their work carefully controlled by medical supervision.

The whole plan of reconstruction in tuberculosis, as well as other diseases and injuries, is to guide our disabled soldiers back to health and useful employment, imbued with the idea that they are still serviceable citizens and not candidates for soldiers' homes and an existence spent in idleness. The task will be a difficult one, but when we consider the efficient organization of the Reconstruction Division in the Surgeon-General's Office and the interest being shown both in and out of the Army in regard to this work, we can only feel confident of its success.

THE SIGNIFICANCE OF PRESYSTOLIC THRILLS IN THE EXAMINATION OF SOLDIERS

A FUNCTIONAL PRESYSTOLIC THRILL

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In textbooks as well as in recent articles in the literature are statements regarding the palpatory findings in mitral stenosis which, while true, have been followed in certain instances so literally and uncritically, we believe, that numbers of men in our Army have been either rejected or given a surgeon's certificate of disability for mitral obstruction when no cardiac abnormality existed. The Army, therefore, has lost both officers and men who are capable of full, active service, so far as the cardiovascular system is concerned.

In discussing the diagnosis of mitral stenosis, the statement is made by Sir James MacKenzie[1] that "in the very early stages—some years before the appearance of a murmur—I have detected a slight presystolic thrill." Sir William Osler[2] says of the presystolic thrill, terminating in the sharp, sudden, systolic shock, "This most characteristic of physical signs is pathognomonic of narrowing of the mitral orifice, and is perhaps the only instance in which the diagnosis of a valvular lesion can be made by palpation alone." In a recent article, Thomas Lewis,[3] in discussing the occurrence of thrills in the effort syndrome or, as he now designates the condition, neurocirculatory asthenia, says, "All cases with presystolic thrills belong to an entirely different group, and are discharged from the army."

To the statements quoted, made by authorities of the first rank, all will subscribe in connection with mitral stenosis. And yet one may be certain that, in the absence of other signs of mitral obstruction or of a history of an acute rheumatism or of distress on effort, none of the authors named would diagnose mitral stenosis on an inconstant thrill, such as we are about to describe; nor would such a man be excluded from active service in the Army.

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[1] MacKenzie, Sir James: Diseases of the Heart, London, 1914, p. 331.

[2] Osler, Sir William: The Principles and Practice of Medicine, New York and London, 1918, p. 822.

[3] Lewis, Thomas: Report on Neurocirculatory Asthenia and Its Management, Mil. Surgeon, 1918, 42, 409-426.

It is precisely such individuals, giving neither a history of rheumatism or chorea, nor of unusual dyspnea on exertion, in whom we have encountered slight presystolic thrills at the apex, ending in a more or less well marked systolic shock, but without other evidence of cardiac abnormality.

Early in the course of our work as cardiovascular examiners of the Eighty-Third Division, N. A., at Camp Sherman, Ohio, in the fall of 1917, we were impressed by the finding of presystolic thrills in recruits in whom we could detect no other evidence of valvular disease of the heart. Our work since then has served to strengthen this impression and to demonstrate the great frequency of this phenomenon.

CHARACTERISTICS OF THE THRILL

The characteristics of the thrill and the associated findings, based on our notes made in the autumn of 1917 and amplified by subsequent experience, are as follows: The thrill is one of short duration, felt only at the apex of the heart, usually at the point of maximal impulse, preceding the apex thrust and terminating with the shock of the first sound. It is never, in our experience, as intense as the thrill felt in well marked cases of narrowing of the mitral orifice. Furthermore, it is best felt when the heart's action is accelerated, with the patient in erect posture. It is almost always lost when the patient is recumbent, particularly when the heart rate slows in recumbency. Indeed, with a slow, quiet action of the heart, the thrill is commonly lost even in the erect posture. The presystolic thrill is more frequent in individuals having a long, slender thorax; it may be perceptible only during expiration.

A systolic, apical shock of variable intensity is palpable immediately after the thrill. Customarily the shock is not marked, though in a few instances it has been so pronounced that we have felt, before completing the examination, that we were dealing with true mitral stenosis. Occasionally, a weak, double systolic shock is palpable with light touch (always, we have observed, associated with marked reduplication of the first sound at the apex). This, too, in the majority of instances, becomes less evident or vanishes when the subject lies down.

With the presystolic thrill, we have found almost constantly a reduplication of the first sound at the apex, usually audible also at the tricuspid area, and at times maximal here. Like the thrill, the reduplication usually becomes less evident or imperceptible, when the soldier is placed in the dorsal position. But reduplication of the first sound at the apex with the subject standing is usually present in the normal heart; it occurs frequently with no thrill and is less dependent on the frequency of the pulse than the presystolic thrill. In subjects with thrill, it is common to find the second part of the reduplicated sound louder than the first, thus simulating a crescendo effect.

Frequently, a soft, functional systolic murmur, fairly well localized at the apex, becomes noticeable in recumbency, but this is by no means the rule. In some instances the murmur has been constant and has been audible in the left axilla.

Presystolic murmurs we have not been able to detect, either before or after exercise, or with the subject standing or recumbent.

The second pulmonic sound is not accentuated when the individual stands, though rarely it may be split. In the recumbent posture, on the other hand, we have not infrequently noted that the second pulmonic sound is louder than the second aortic, and it may be reduplicated. But this alteration in the second pulmonic sound, particularly in thin chested men, is met quite as often in normal hearts without thrill as in those with it.

There has been, in short, no evidence of disease of the heart, and since one encounters this thrill with great frequency in soldiers who complain of no symptoms on physical exertion and in whom no evidence or history of previous rheumatic infection can be obtained, we look on the presystolic thrill described as functional—a normal phenomenon in certain individuals during periods of excited heart action, whether the result of emotion or of effort.

FREQUENCY AND SIGNIFICANCE

That the presystolic thrill we have described is not of itself a contraindication of active military training is proved by the following observations: At Fort Oglethorpe in recent examinations by one of us (M.) of men who have received military training from three to ten months, we have found many with presystolic, apical thrills, with hearts normal in other particulars. The number of cases examined is not large enough to enable us to predict with accuracy the relative frequency of such thrills, but that they are common is shown by the fact that in one group of twenty men, six had distinct presystolic thrills, and in a second group of six soldiers there were three with thrills, all of whom had been free from symptoms while training, and were examined prior to departure for overseas service. All had good color, responded normally to the exercise test, and were normal in other respects.

In twenty-three men of the first draft newly arrived at Camp Sherman, we have full notes showing the presence of presystolic thrills such as we have described. These men were examined for the most part in September and October, 1917, though a few of them were not seen until November or December. The subsequent history of this group shows (May 16, 1918) that fourteen of them are on active duty; five more men it has been impossible to trace, but their names do not appear on the list of men discharged, and it is probable that they are still in the service. Four of the men having such thrills have been discharged. Mitral stenosis was given as the cause of discharge in one (a colored private). The cause of the discharge of the second is not stated, while the third and fourth were discharged with diagnosis of hypertrophy of the heart and dilatation of the aorta and of mitral insufficiency, respectively. None of the four were examined by us just prior to discharge, and we cannot, therefore, go into greater detail regarding the findings leading to discharge.

It seems clear, however, that the presystolic thrill cannot be of any military significance, if unassociated with evidence of cardiovascular disease, when fourteen—or, more probably, nineteen—men entering the Army can undergo from six to eight months of intensive training without cardiac symptoms.

We have encountered the functional presystolic thrill very frequently in individuals ill with chronic infections such as pulmonary tuberculosis, and also in convalescents from scarlet fever, measles, pneumonia, mumps, acute cerebrospinal meningitis, etc., in whom slight bodily exertion leads to tachycardia.

Further evidence of the frequency and significance of the functional presystolic thrill is furnished through observations of Capt. Julian E. Gammon, M. R. C., who has recognized the nature of the thrill independently and who has generously permitted us to quote part of his data. He has noted the effect of posture and the importance of acceleration of the heart in the detection of the thrill, as we have. In March, 1918, eleven patients in a small ward, convalescent from acute infections, were examined independently by Captain Gammon and two associates. After each had completed his examinations, comparison of findings revealed the fact that all had found a presystolic thrill in seven of the eleven patients. No other signs suggesting organic disease of the heart were found. Teleroentgenograms were made of the seven men with presystolic thrill; no cardiac enlargement was detected in any of them. Furthermore, none of the patients gave a history of acute rheumatic fever or chorea, or of symptoms of cardiac embarrassment on effort prior to admission to the hospital. In all of them, the Wassermann reaction was negative.

It is thus apparent that presystolic apical thrills are of very common occurrence in the erect posture when the heart action is accelerated. They are encountered in normal individuals as well as in convalescents and in those ill with chronic infections and with neurocirculatory asthenia with no demonstrable myocardial defects.

OBSERVATIONS OF OTHER AUTHORS

In the literature, our search, necessarily limited, has revealed no report of presystolic thrills in normal hearts. Sewall[4] described sounds audible at the apex in certain normal hearts which simulated the circulatory findings in mitral stenosis. He is perfectly familiar,[5] too, with the presystolic thrill, though it is not described in his paper. He describes several modifications of the crescendo tone of functional region:

> Most commonly it occurs as an extremely short, smooth tone, with an acute accent apparently sharply terminating with the beginning of ventricular contraction. In other cases of what may be called the functional presystolic murmur, the crescendo tone is rough and vibrating in character and of perceptible duration. One other presystolic auditory symbol, closely allied to the latter, is found in certain of the so-called "reduplications" of the first sound of the heart. When such a reduplication is the weaker of the two elements and precedes the contraction of the left ventricle without intermission, the first sound may appear to begin with a crescendo tone. Such modifications of the normal first sound are found only in cases in which the general clinical condition signifies either essential cardiac weakness or perturbation due to acceleration of the circulation; this acoustic phase is therefore of distinctly diagnostic worth.

In our studies we have been able to confirm Sewall's observations. By far the commonest auscultatory finding at the apex in our cases with thrill has been a reduplication of the first sound, with the accent on the second half of the reduplication. But, as already stated, we look on reduplication of the first mitral and tricuspid sounds with the subject erect as normal. It is encountered much more frequently than the presystolic thrill.

Bridgman[6] has shown more recently that there is normally a presystolic sound which is usually below the range of human audibility. By means of electrophonograms he estimates that this normal sound possesses vibrations at the rate of about 25 per second. The sound begins from 0.06 to 0.1 second before the first sound. Whether its vibrations are accountable for the functional presystolic thrill, we are unable to say. As the duration of the sound is only 0.04 second, it seems probable to us that it is not the cause of the thrill, which seems more prolonged.

The great majority of presystolic thrills encountered in soldiers will be found, we feel convinced, to be of the harmless, functional type which we have described. Their presence, however, is an indication for a particularly careful inquiry into the history and for a painstaking, thorough examination of the cardiovascular system. The two pathologic cardiac conditions most likely to give rise to presystolic thrill at the apex are mitral stenosis and aortic insufficiency. In the latter, a presystolic apical thrill is encountered usually only in those cases in which the presystolic murmur of Flint is audible, as Thayer[7] and others have shown.

In view of our findings, we are unable to agree with the statement of Lewis to the effect that all men with presystolic thrills should be discharged from the Army. Doubtless, in making this statement, he refers to soldiers with other evidences of mitral stenosis.

In his wonderful report on the "effort syndrome," Lewis[8] says: "It may be taken as an axiom that no soldier who is free from symptoms on duty has an affection of the heart which incapacitates him, and this axiom may be adopted irrespective of any unusual sign found in the heart." This statement confirms us in our opinion as to the prognostic innocuousness of the presystolic thrill we have described.

CONCLUSION

A presystolic thrill best felt in the erect posture, when the heart's action is accelerated through emotion or exercise, associated with reduplication of the first sound and a more or less marked systolic shock at the apex, becoming less perceptible or disappearing when the patient is in the recumbent position, is not disqualifying for full, active military service, in the absence of evidence of cardiac disease. It is a normal phenomenon in a certain proportion of healthy adults. It may also be encountered in those suffering with the effort syndrome and with chronic infections, and is frequently found in convalescence from acute infections.

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[4] Sewall, Henry: A Common Modification of the First Sound of the Normal Heart Simulating That Heard in Mitral Stenosis, Am. Jour. Med. Sc., 1909, **138**, 10-16.

[5] Sewall, Henry: Personal Communication to the Authors.

[6] Bridgman, E. W.: Notes on a Normal, Presystolic Sound, Arch. Int. Med., October, 1914, pp. 475-480.

[7] Thayer, W. S.: Observations on the Frequency and Diagnosis of the Flint Murmur in Aortic Insufficiency, Tr. Assn. Am. Phys., 1901, **16**, 393.

[8] Lewis, Thomas: Report on Soldiers Returned as Cases of "Disordered Action of the Heart" (D. A. H.) or "Valvular Disease of the Heart" (V. D. H.), Medical Research Committee, National Health Insurance, Special Report Series, No. 8, London, 1917, pp. 1-63.

The Cost of Infectious Diseases.—Scarlet fever, diphtheria and measles cost the people of Chicago (estimated) $7,562,442 for the year 1916. Some toll to pay. And yet much of it, if not all, might have been prevented. It can confidently be asserted that this tremendous bill, which the people of Chicago were forced to pay, was due largely to their carelessness and indifference. Scarlet fever cost $2,170,459; diphtheria, $4,535,395, and measles cost $856,588; total, as stated, for the three diseases, $7,562,442.—*Bulletin*, Chicago School of Sanitary Instruction.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - : Five dollars per annum in advance

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SATURDAY, AUGUST 3, 1918

SCIENCE AND THE FOOD ADMINISTRATION IN WAR

Although our public press has given scant notice of the existence of an Inter-Allied Commission on Alimentation, designated in some reports as the Scientific Food Commission, the significance of its organization deserves to be widely heralded. The Inter-Allied Conference, in London, Paris and Rome, of representatives of France (Gley and Langlois), Italy (Bottazzi and Pagliani), the United Kingdom (Starling and Wood), Belgium (Hulox), and the United States (Chittenden and Lusk) marks the recognition of a principle—the essential propriety of calling on men of science trained in the study of nutrition for expert advice in relation to the food problems now confronting the world. This was not done by the nations involved in the earlier days of the war. Physiologists and scientifically trained advisers or administrators received little consideration from the European governments; indeed, to an outside observer it seemed almost as if the expert in nutrition had been consistently "snubbed" in the management of the food situations. It remained for America, long taunted as the land of the "practical" man where dollars and cents leave little place for theoretical science, to show to the world the correct way to approach questions that cannot be solved satisfactorily or definitively by the political strategist or the untrained propagandist.

The Food Administration of the United States—an organization or division of the government made indispensable early in the war—has from its very inception recognized the supreme importance of consulting scientific men in those fields in which they may be presumed to have superior wisdom. The Food Administrator, Mr. Hoover, is himself a man trained in scientific methods and in full sympathy with the aims of science. He insists on scientific surveys as a basis of all important actions; and while he is intimately conversant with the industrial and economic factors that are so important in general in food control, this "food dictator" never loses from his mind the physiology, the psychology or the sociology of nutrition. As a member of the administration staff has expressed its purpose, a fundamental aim is to bring all of the men who deal with the particular aspects of the problems in trade in close contact with the scientist, so that each may appreciate the other's point of view. Thus it would be a serious error for any government to attempt a reorganization of the dietary of its citizens or even of its domestic animals that was contrary to the dictates of scientific intelligence. Who is to determine what changes are safe, what reductions or substitutions can be made without detriment to health or efficiency? Who shall be the critic of the food factors on which national vitality hinges if not the men who have spent their lives in the investigation of the science of nutrition?

To its credit let it be reiterated that the United States Food Administration has never failed to understand the value of scientific experts. Only recently the *British Medical Journal* has pointed out that any propaganda having for its object the encouragement of food production and of economy in the use of food should be organized and directed by men of science well acquainted with the subject. Our English contemporary frankly admits that this elementary principle was at first neglected in Great Britain. "Even in Germany, which can boast of its Liebig, Pettenkofer, Voit and Pflüger, and which still is the home of Rubner and Zuntz, the counsel of the physiologist was not sought at first; although it appears, to quote the *British Medical Journal,* that the truth of the "elementary principle" is beginning to be recognized in Germany too, where "voices are being raised in favor of consultation of scientific and medical experts by the authorities."

How well the scientific side of our national Food Administration has been organized is perhaps best exemplified by the character of its representatives. An Advisory Committee on Alimentation includes Dr. Carl L. Alsberg, chief of the U. S. Bureau of Chemistry; Director R. H. Chittenden of the Sheffield Scientific School; V. L. Kellogg of Stanford University, who was active in the relief of Belgium; Dr. C. F. Langworthy, nutrition expert of the U. S. Department of Agriculture; Graham Lusk of the Cornell University Medical College; E. V. McCollum of Johns Hopkins University; Lafayette B. Mendel of Yale University; Raymond Pearl, statistician of the administration; A. E. Taylor of the University of Pennsylvania, and President R. L. Wilbur of Stanford University. The Advisory Committee on Public Health contains the names of Dr. L. P. Ayres of the Russell Sage Foundation; Dr. Herman Biggs; D. L. Edsall of the Harvard Medical School; Dr. Cary T. Grayson of the U. S. Navy; A. W. Hewlett of Stanford University; John Howland of Johns Hopkins University; F. G. Novy of the University of Michigan; R. M. Pearce of the University of Pennsylvania; H. Gideon Wells of the University of Chicago, and

Lieut.-Col. W. H. Welch. Amid the criticisms leveled at so many branches of the government in its gigantic efforts to win the war, it is worth while to point to one branch at least in which correct principles have been followed in pioneer ways. Guided by the judgment of such consulted experts, the medical profession may and should join in the efforts to dispel public alarm when wheat is forced to give way to other cereals, when the allowance of meat is reduced, when sugar is restricted to 3 pounds per person per month, and when other innovations are suggested in the interests of interallied food economy. We can do this the more gladly now that our allies too have recognized the value of scientific advisers in a conference that studies the food resources, the food needs, and the nutritional conditions in the allied nations at war.

BACTERIOLOGY OF WAR WOUNDS OF THE EXTREMITIES

Sacquépée[1] has made a careful study of a large series of war wounds of the extremities, with particular reference to the conditions preceding and accompanying infection. He determined the different kinds of bacteria and paid special attention to the number at different times. The enumeration was made by counting the bacteria in stained preparations according to the method of Carrel, by means of which it is possible to calculate approximately the number of bacteria in a given volume of exudate. This direct method of enumeration does not permit the recognition of any particular species except possibly the streptococcus. The method, however, is of value because by counting the bacteria one can determine in a rough way the rapidity with which they multiply. In the cultural work, Sacquépée made use of the accepted aerobic and anaerobic methods as well as of certain special methods. It appears that practically all severe (osteomuscular) war wounds of the extremities are contaminated with bacteria from the first, but not necessarily at once infected. Of 233 wounds examined by Sacquépée before any surgical treatment had been applied, 228 were contaminated and five sterile, two of the latter being revolver wounds. Of the 228 wounds, fifty-eight were contaminated exclusively by aerobic bacteria, seven by anaerobic, and 163 by both kinds. Of 100 wounds of which cultures were made within twenty-four hours and before infection could be recognized, 85 per cent. gave staphylococci, 12 per cent. streptococci, 40 per cent. enterococci, 20 per cent. diphtheroids, 68 per cent. *B. perfringens*, and 22 per cent *B. sporogenes*, and a number of other forms in fewer cases. We see that of the aerobes, the staphylococcus and the enterococcus predominate, and of the anaerobes, *B. perfringens*; the streptococcus and the more dangerous anaerobes (*vibrion septique*, 3 per cent. and *B. bellonensis*, 4 per cent.) being relatively rare. These proportions may vary according to climatic, geographic and anatomic conditions; in rainy weather the wounds are more contaminated and the anaerobic forms predominate. In clayey soil, the streptococcus and the pneumobacillus seem favored; in chalky soil, the enterococcus. Wounds with comminution of bone are in general more contaminated than simple wounds; thus, *B. perfringens*, that is, the gas bacillus, was found in about 85 per cent. of the fractures of the lower extremities.

We see that the important cocci are the streptococcus and the enterococcus, which Sacquépée thus distinguishes: In broth, the first forms long chains; on agar, shorter chains; it gives small colonies, a granular growth in broth, is of feeble vitality, and is hemolytic. The enterococcus is pleomorphic on agar; in broth, it forms short chains, masses and diplococci; on agar slants, small bluish colonies; in broth, turbidity with sediment. It acidifies and coagulates milk, and it is not hemolytic. Whether or not this enterococcus corresponds to any special variety of streptococcus cannot be decided from the facts at hand.

Every wound, then, is contaminated from the beginning, but not, as might be taken for granted, at once infected. Between the time of contamination and actual recognizable infection a certain period elapses, during which the microbes multiply; but the end of this period is not easily defined. It may be regarded as at an end, however, when the clinical conditions clearly indicate that infection is present; and Sacquépée shows that at this time bacteriologic examination gives a flora that seems characteristic of infection at least in numbers. This period of incubation is variable: some wounds are infected rapidly, others more slowly. The contamination of wounds with subsequent infection is, above all, the result of the introduction of foreign bodies, as projectiles and fragments of clothing, which are contaminated with the bacteria of the skin or of external origin. It is about the foreign body that the microbes multiply first, and it is from here that they pass along the track of the wound and into the depths of the tissues. Sacquépée found that in the first hours it was difficult to demonstrate any bacteria. From the seventh to the twelfth hour or so, multiplication is easily recognized, however, each cubic millimeter of the exudate containing about 600 germs, the multiplication being more rapid when the tissues were contused, and it may increase rapidly from now on, clinical conditions generally indicating infection. Now the number of bacteria increases rapidly and progressively for about thirty-six hours; at first aerobic forms, usually nonpathogenic, but soon the anaerobic forms begin to multiply also, and there may be a relative diminution in the nonpathogenic aerobes at the same time as there is increase in the pathogenic, such as the enterococcus and the pneumobacillus. It seems that the second day is the time for the streptococcus to begin development. Sacquépée recapitulates the details of his observations somewhat in this manner: In osteomuscular war wounds of the extremities, infection almost without exception becomes imminent between the seventh and eleventh hour after the receipt of the wound, and infection is established between the twelfth to the seventeenth hour so far as the anaerobes are concerned, and between the eighteenth and forty-eighth hour so far as the aerobes are concerned. The practical lesson from the surgical point of view is, of course, that intervention is the more likely of success the earlier it can be made.

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[1] Sacquépée, E.: Etudes bactériologiques sur les plaies de guerre (blessures ostéo-musculaires des membres, Jour. de phys. et de path. gén., 1918, **17**, 621.

VENTILATION AND SCHOOL HYGIENE

The engineer of the Chicago Commission on Ventilation, W. J. Mauer,[1] has remarked that the ventilating engineer stands in ill repute today in the eyes of many, not because of lack of knowledge or skill on his part, but because of lack of uniformity of opinion and the need of standards of good air conditions and installation methods. Ventilation is a definite problem which cannot be solved by the haphazard method of opening a window here and there. When one stops to remember that mankind is more immediately dependent on air than on either food or water, it seems surprising indeed that so little serious attention and scientific study have been devoted to the air we breathe, in comparison with diet and drinking supplies.

Motion, coolness, a certain degree of humidity, freshness—each of these factors has at some time been emphasized in relation to proper ventilation. The fear of drafts, at least of gentle drafts such as belong to ventilation schemes, is decreasing. The suspicion of subtle unidentified volatile "animal" poisons in assembly halls has been dispelled by the demonstration of their nonexistence. The propaganda for fresh air in public places has, however, found a topic for debate in respect to the methods of ventilation to be employed. Speaking specifically, the uncertainty concerns the comparative value of the open air and the mechanical type of ventilation. To cite an illustrative case we may ask, Shall our schoolrooms be ventilated by the system of fans or by open windows?

This is a timely question. The summer vacations are periods for repairs and alterations in school buildings. The period for essential changes that conduce to child health are at hand. Working in cooperation with the New York State Commission on Ventilation, whose investigations have been recorded from time to time in THE JOURNAL, the Bureau of Child Hygiene of the New York City Department of Health has contributed some striking evidence on the subject.[2] In a comparison involving 5,533 pupils in many classrooms, the relation of the temperature and type of ventilation of the schoolrooms to absence due to respiratory disease was investigated. It was found that children in classrooms with closed windows and ventilated by mechanical methods, such as the plenum fan system, were more subject to such ailments severe enough to keep them from school attendance than were children who were in classrooms kept at the same or lower temperature and ventilated wholly by open windows. Furthermore, in the closed window, mechanically ventilated type of room, the rate of respiratory diseases occurring among pupils in actual attendance, that is, not ill enough to be kept at home, was 98 per cent. higher than in naturally ventilated schoolrooms at the same temperature (about 68 F.), and about 70 per cent. higher than in the open window type of classroom kept at about 50. There was no difference between the sexes. Contrary to popular notions, the relative humidity was in no case a causative factor in the occurrence of respiratory illness among schoolchildren. These observations on the hygiene of ventilation speak for themselves. Incidentally they give evidence of the value of one of the bureaus in the municipal health department organization of New York City which has recently become the target for something savoring of political interference.

THE ALLERGIC BASIS OF SYMPATHETIC OPHTHALMIA

The allergic theory of a sympathetic ophthalmia was first advocated by Elschnig.[3] He assumed that an injury to the uvea of the exciting eye led to the disintegration of uveal tissue which was absorbed and, acting as antigen, produced hypersensitiveness of the organism and especially of the other eye, whereupon the circulating antigen would react with the sensitized eye and produce an allergic reaction manifested clinically as sympathetic ophthalmia.

To fulfil the tenets of this theory some constituent of uveal tissue must be able to act as an organ-specific antigen in the same animal, and ocular allergy or anaphylaxis must be demonstrable in a properly sensitized animal by means of the antigen introduced into the blood stream; that is, uveal tissue absorbed from one eye must be capable of sensitizing the other eye in the same animal.

Elschnig used complement fixation for the study of the immune bodies; other investigators have studied this problem, but with somewhat divergent results, using the epiphanin and precipitin reactions as well as complement fixation. Recently Woods,[4] at the University of Pennsylvania, has made experiments primarily to study the immunologic properties of uveal tissue, and especially those of the pigment. He repeated substantially the work of Elschnig, and while his results do not seem as clear cut as those of Elschnig, they indicate that the uveal pigment is antigenic and lacks species specificity but possesses organ specificity. This is shown by the fixation of complement, by the use of serum against the uveal pigment of the dog with beef pigment as antigen, and by the use of serum against beef pigment with dog pigment as antigen. By perfusion experiments, Woods demonstrated that while the defibrinated blood of a normal dog caused no ocular reaction, when the antigen, uveal tissue or pigment to which the dog was sensitized was added to the perfusion fluid, a prompt contraction of the pupil occurred, followed shortly by small hemorrhages throughout the fundus. This is in agreement with the observation of Dale and Schultz, who discovered the contraction of sensitized smooth muscle in the presence of specific antigen. When injected into the vitreous of one eye, both heterologous and homologous uveal tissues were absorbed; after a suitable period to bring about a state of allergy, the injected eye was enucleated, and a week later the remaining eye was perfused with specific antigen, and allergic reactions resulted invariably.

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[1] Mauer, W. J.: Ventilation of Army Barracks, Am. Jour. Pub. Health, 1918, **8**, 112.

[2] Baker, S. Josephine: Classroom Ventilation and Respiratory Diseases Among Schoolchildren, Am. Jour. Pub. Health, 1918, **8**, 19.

[3] Elschnig, A.: Arch. f. Ophth., 1909, **75**, 459; 1910, **76**, 509; 1911, **78**, 549, 1911, **79**, 428.

In considering the results of these experiments, it should not be overlooked that they bring additional evidence in support of the cellular theory of allergy or anaphylaxis. The results are of general immunologic interest also because they show that the protein in the uveal pigment belongs to a limited class of proteins which are peculiar in that they give rise to antibodies that are specific for these proteins in whatever species they may occur; that is to say, the reactions are organ-specific and not species-specific. Heretofore the only other well established example of this organ specificness has been the crystalline lens. To the practical ophthalmologist the results should be of great interest not only because they would seem to throw light on the nature of sympathetic ophthalmia but also because they indicate the necessity of preventing as much as possible the absorption into the general circulation of uveal materials.

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[4] Woods, A. C.: Jour. Immunol., 1918, **3**, 75.

Nutrition.—To the trained eye, the general appearance of the child may reveal much that is hidden to the mother. The posture, the tissue turgor, firm resistant subcutaneous tissues speak for health; flabby, nonresistant ones for malnutrition. Expressionless, tired looking children with dark circles about the eyes need to have their diets revised, or else have grave disturbances of health. Cyanosis of the cheeks, ears and finger tips may speak of cardiac or pulmonary disease. The bony changes in the skull of rachitic children are recognized at a glance. Disproportion between various skeletal members may reveal achondroplasia or other structural deformity.

Current Comment

ENZYMES IN TUBERCLE BACILLI

That many micro-organisms contain and produce enzymes of the type familiar in connection with the digestion of foodstuffs is a commonly known fact. For some bacteria this has been established with scientific precision, and their equipment of suitable enzymes has been assumed to play a part in the nutritive processes of these cells as well as in the disintegrative or other changes which some of them bring about in the tissues or fluids wherein they find lodgment and develop. The tubercle bacillus, on the other hand, has until recently been regarded as devoid of the ordinary well known enzymes. Not all investigators of the chemical bacteriology of this group have failed to obtain evidence of these digestive agents. An occasional report has recorded their presence.[1] It has remained for the development of more refined methods of estimating enzymatic performance to demonstrate something more definite about the tubercle bacilli. The new studies of Corper and Sweany[2] of the Municipal Tuberculosis Sanitarium in Chicago indicate that both the human and bovine varieties possess autolytic enzymes. The bacilli themselves, or the autolysates therefrom, possess a trypsin-like enzyme capable of splitting proteins in alkaline solution; an erepsin-like enzyme capable of decomposing peptone in acid solution; a small amount of pepsin-like protease capable of digesting proteins in acid solution; a nuclease that will split nucleic acid; and a urease. Although lipase has been reported, carbohydrate-digesting enzymes could not be detected. If we seek for an explanation for the tardy discovery of these facts in a much investigated micro-organism, it must be recalled that the sluggish tubercle bacillus has long been regarded, in common with the related acid-fast lepra and smegma bacilli, as an organism biologically and chemically distinct from the ordinary rapidly growing bacteria. So far as the equipment of enzymes is concerned, this now appears to be a quantitative rather than a qualitative distinction.

THE SIGNIFICANCE OF WEIGHT AT BIRTH

The weight of infants at birth is subject to marked variations. In the case of extremely low weights it is presumable that the prenatal development has not been satisfactorily completed. But even when such admittedly exceptional circumstances are left out of consideration, there is a not insignificant range of variation in what may be tentatively termed the normal weight of human infants at birth. By a careful study of the statistics of growth during the early days of life in infants nourished with milk, the most acceptable food, Hammett[3] has evolved some interesting theses regarding the infant at this period of development. The records of more than five hundred individuals at the Boston Lying-In Hospital show that the growth capacity of human infants during the first two weeks after birth is in a large degree dependent on the weight at birth. Roughly, it is inversely proportional to the initial weight. The ability to recover and pass the initial weight after the postnatal decline obviously varies in the same way, so that at the completion of the period studied, 82 per cent. of those infants weighing between 5 and 6 pounds at birth had recovered or passed their initial weight, as compared with 20 per cent. of those weighing from 10 to 11 pounds. The intermediate groups vary inversely as to their weight at birth. These facts recall the contention of Minot that the rate of growth is a function of age. As he expressed it, "the more rapid growth depends upon the youth of the individual." From this Hammett jumps to the conclusion that the weight of an infant at birth is an index of its relative physiologic age. Sixty-five per cent. of all infants weigh between 6 and 8 pounds at birth. The opinion has been advanced, furthermore, that a birth weight lying between 6 and 8 pounds is indicative of the completion of the intra-uterine growth cycle, that weights under 6 pounds represent physiologically younger individuals, and that those over 8 pounds at birth have completed and passed this cycle and are physiologically older.

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[1] Kendall, A. I.; Day, A. A., and Walker, A. W.: Jour. Infect. Dis., 1914, **15**.

[2] Corper, H. J., and Sweany, H. C.: The Enzymes of the Tubercle Bacillus, Jour. Bacteriol., 1918, **3**, 129.

[3] Hammett, F. S.: The Relation Between Growth Capacity and Weight at Birth, Am. Jour. Physiol., 1918, **45**, 396.

METABOLISM IN MALARIAL FEVER

In afebrile conditions, the production of heat in the body equals heat elimination, so that the body temperature is kept at a constant level. Obviously in fever either or both of these factors may become upset. Under normal conditions of health, heat production is enormously increased during severe exercise or in such a physiologic response as the shivering after exposure to cold. But in such instances of increased metabolism no marked rise in temperature occurs, for the heat elimination is increased to compensate for it. From such considerations it would appear as if in fever there must be some disturbance in the power of the body to rid itself of heat. In Coleman and Du Bois'[1] classic calorimetric observations on the metabolism of typhoid patients, an increase in heat production was found to accompany a rising temperature in nearly all cases observed. The heat elimination was not equal to the heat production, but rose to meet the higher level of metabolism. Barr and Du Bois,[2] likewise working with the calorimeter of the Russell Sage Institute, have added a valuable study of metabolism in malarial fever to the already numerous list of contributions of this organization to clinical calorimetry. They have arrived at the conclusion that in malarial paroxysms the increase in body temperature is due to an increasing heat production, which more than offsets a slightly increasing heat elimination. During a chill the heat production may increase from 100 to 200 per cent., falling immediately thereafter to within from 20 to 38 per cent. of the average basal level. At this time there follows a fall of temperature due to the greatly increased heat elimination. According to Barr and Du Bois, there is no indication of abnormal processes of metabolism in malarial fever except that the protein metabolism is somewhat increased.

Medical Mobilization and the War

Medical Military Information

The following pamphlets have been prepared and are now available for distribution by The Journal. These pamphlets will be sent on receipt of postage as stated following the title:

1. Information Regarding Medical Service in the United States Army: Organization; Appointment in the Medical Reserve Corps; Reporting for Duty; Insurance, Compensation, Civil Rights; Customs of the Service; Work in the Training Camps; Equipment of Officers. Pocket size, 39 pp. 3 cents.
2. Standards of Physical Examination Governing the Entrance to All Branches of the Armies of the United States: Form 75, Issued Through the Office of the Provost Marshal-General. 3 cents.
3. Physical Examinations Under the Selective Service. Report of the meetings held on this subject in Chicago, June 13 and 14. 54 pp. 6 cents.
4. Reconstruction and Rehabilitation of Disabled Soldiers. A report of the meetings held on this subject in Chicago, June 13. 6 cents.
5. Trench Fever. A Report of the British War Office Trench Fever Investigation Committee, reprinted from The Journal of July 6, 13 and 20. 44 pp. 6 cents.
6. The Nature and Treatment of Wound Shock and Allied Conditions. Report of a special investigation committee of the Medical Research Committee of Great Britain. 104 pp. 20 cents.

Personnel of the Medical Department

For the week ending July 26, 1918, the personnel of the Medical Department of the Army included:

Medical Corps: 929, including 1 major-general, 65 colonels, 112 lieutenant-colonels, 296 majors and 455 lieutenants.

Medical Reserve Corps: 22,149, including 1,502 majors, 6,506 captains and 14,141 lieutenants. On active duty: 20,381, including 1,428 majors, 6,022 captains and 12,931 lieutenants.

Medical Corps, National Guard: 1,199, including 22 lieutenant-colonels, 264 majors, 256 captains and 657 lieutenants.

Medical Corps, National Army: 360, including 6 brigadier-generals, 86 colonels, 258 lieutenant-colonels, 9 majors and 1 captain.

The Discharges to date are:

Causes	Number		
	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	737	54
Inaptitude	0	276	21
Other branches of service	3	644	74
Resignations	0	188	34
Domestic troubles	0	61	1
Needed by community	1	50	0
Deaths	1	96	6
Dismissals	0	16	4
Duty completed	0	3	0
No reasons given	0	14	1
	5	2,085	195

American Medical Men Decorated

Lieut. J. Breckinridge Bayne, Washington, D. C., who recently arrived from Roumania, was awarded a decoration by the King of Roumania for his efficient work in fighting the typhus epidemic in that country.——Surg. Wrey G. Farwell, U. S. Navy, Washington, D. C., in duty with the Marine Corps, has been cited for valor in rendering first aid with Col. Arnold W. Catlin, Brooklyn, of the Marine Corps.——Lieut. Theodore H. Sweetser, M. R. C., U. S. Army, New York City, has been recommended for a British War Cross, because of gallantry and devotion to duty near Passchendaele.——For courage and steadfastness during ten days and nights of continuous service, Capt. Harry Rogers, Orange, N. J., in command of the American Ambulance Service with the French Army has been decorated with the Croix de Guerre with a gold star.

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[1] Coleman, Warren, and Du Bois, E. F.: Clinical Calorimetry, Paper 7, Calorimetric Observations on the Metabolism of Typhoid Patients With and Without Food, Arch. Int. Med., May, 1915, p. 887.

[2] Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, Paper 28, The Metabolism in Malarial Fever, Arch. Int. Med., May, 1918, p. 627.

Wounded

It is announced that P. A. Surg. Sydney Walker, Jr., U. S. N. R. F., Chicago, attached to the Marine Brigade in France, has been severely wounded in action.——Lieut. Howard L. Beye, M. R. C., U. S. Army, Evanston, Ill., on duty with the American Expeditionary Forces in France, was severely wounded, July 15.——Asst. Surgs. Lester L. Pratt, Orlando H. Petty, U. S. N., both of Philadelphia, attached to the U. S. Marine Corps, are reported to have been severely wounded in action, July 14.——Capt. William J. McGregor, M. R. C., U. S. Army, Wilkinsburg, Pa., who recently suffered the amputation of both legs on account of wounds had a narrow escape from death recently when the hospital in which he was lying was bombed by German airplanes.——Capt. Charles H. Arnold, M. R. C., U. S. Army, Lincoln, Neb., on duty with the British Expeditionary Forces, while caring for the injured, June 1, was wounded by a German sniper.—— Capt. Daniel A. Webb, C. A. M. C., Scranton, Pa., on duty with the expeditionary forces in France, was recently wounded in the left hand.——Lieut. Walter J. Daly, M. R. C., U. S. Army, Philadelphia, received severe shrapnel wounds and is now said to be in a base hospital in a serious condition.

Prisoners

The following medical officers are said to be prisoners in Germany: At Camp Villingen, Lieut. Franklin Burche Pedrick of Washington, D. C., captured at Fleurboix, April 9, and Bernard James Gallagher, Waseca, Minn., captured at Marcelcave, May 28; at Camp Tuchel, Lieut. John S. Abbott, St. Paul, captured, March 21, at Laguycourt; at Camp Hamlin, Lieut. Louis Martin Edens, Cabool, Mo., captured, April 10, at Messines; at Bad Stuer, Lieut. Maurice S. Redmond, M. R. C., Pittsburgh, captured at Ploegsteert, April 11.

Surgeon Whiteside Missing

In the sinking of the U. S. S. *President Lincoln*, which was torpedoed by an enemy submarine, May 31, with the loss of three officers and twenty-five enlisted men, P. A. Surg. Lindsay C. Whiteside, U. S. Navy, Washington, D. C., a graduate of Jefferson Medical College in 1907, aged 32, and a Fellow of the American Medical Association, is reported to have gone down with the ship.

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in The Journal, June 1, 22 and 29, and July 13, 20 and 27.

ALABAMA

Birmingham—Moore, C. H.
Dothan—Ellis, J. T.
Huntsville—Wilson, F. B.
Montgomery—Thigpen, W. G.
Prichard—Long, D. J.
Valley Head—Norton, E. M.
Walker Springs—Rudder, B. C.

ARIZONA

Mayer—Poole, R. E.
Tucson—Thomas, C. A.

ARKANSAS

Fort Smith—Moulton, E. C.
Prescott—Hesterly, J. B.

CALIFORNIA

Brentwood—Cook, F. S.
Dinuba—Tillotson, C. A.
Dos Polos—Johnson, B. W.
Fair Oaks—Bramhall, R. N.
Fresno—Thorne, W. M.
Hollywood—Mueller, O. H.
Jackson—Endicott, E. E.
Long Beach—Harvey, E. R.
Los Angeles—Campbell, M.
Skeel, D. W.
Smith, B.
Oakland—Vannuys, R. G.
Von Adelung, E.
Randsburg—Denton, W. L.
San Jose—Ryan, F. S.
Van Dalsem, S. B.
Whiffen, R. A.
Wilson, D. R.
Stockton—Six, C. L.

COLORADO

Boulder—Swartz, F. G.
Canon City—Wilkinson, C. H.
Denver—Hillkowitz, P.
Pueblo—Killough, H. B.

CONNECTICUT

Hartford—Sweet, J. H. T., Jr.
New Haven—Slemons, J. M.

DISTRICT OF COLUMBIA

Washington—Curtis, J. B. G.
Ladd, J. M.
Martell, L. A.
Romaine, F. W.

FLORIDA

Arcadia—Ford, J. A.

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Atlanta—Clay, G. E.
Wilson, R. F.
Douglas—Coleman, A. S. M.
Sibbert, W. A.
Fitzgerald—Frazer, J. L.
Greenville—Thrash, J. A.
Groveland—Deal, D. L.
Jeffersonville—Hartley, J. M.
Milledgeville—Allen, H. D., Jr.
Rex—Longino, D. R.
Savannah—Morrison, J. E.
Scottdale—Allgood, C. L.

IDAHO

Lewiston—Braddock, E. G.

ILLINOIS

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Butler, W. J.
Clark, C. C.
Conway, S. J.
Daggett, L. R.
Haeffner, A. W.
Ingram, M. I.
Kappelman, J. A.
Linnell, B. M.
Markson, M. R.
McDowell, C. L.
Chicago—McIntyre, G.
Merrell, H. H.
Miller, W. H.
Robinson, M. V.
Rupp, W.
Schultz, O. T.
Schwartz, A. J. C.
Scott, H.
Seaforth, E. W.
Sutton, D. C.
Warszewski, E. H.
Wilson, J. W.
Yudelson, A. B.
Chicago Heights—Fenn, G. K.
Elmhurst—Langhorst, H. F.
Hazel Dell—Thomas, G. B.
Henry—Coggeshall, T. C.
LaGrange—Danielson, W. A.
Litchfield—Zoller, C. H.
Monmouth—McKinley, R. W.
Naperville—Rikli, A. R.
Oak Park—Cole, L.
Ribbeck, W. A.
Ottawa—O'Conor, V. J.
Pana—Danford, R. C.
Pawnee—Mertz, A. A.
Rockford—Elvidge, R. E.
Savana—Cottral, G. H.
Springfield—Colby, C. P.
St. Charles—Carpenter, R.
Steeleville—Wiebusch, A. C. C.
Taylorville—Meacham, G. T.
Toulon—Packer, E. B.
Winfield—Anderson, J. L.

INDIANA

Attica—Casey, E. B. M.
Clay City—Brown, A. S.
Decatur—Hoffmann, S. P.
Evansville—Cody, B. L.
Hammond—Chidlaw, B. W.
Young, A. A.
Indianapolis—Terrell, B. J.
Marion—Gessler, W. F.
Mecca—Swayne, J. F.
New Castle—Wiggins, D. S.
Salamonia—Jones, H. H.
Valparaiso—Blount, R. D.
Whiting—Mackey, C. G.

IOWA

Cedar Rapids—Johnson, N. W.
Clarinda—Sherman, A. M.
Clermont—Carr, L. L.
Colfax—Anspach, W. E.
Davenport—Braunlich, G.
Eldon—Murphy, J. O.
Laurens—Nilsson, F. C.
Onawa—Talboy, J. H.
Perry—McKirahan, J. R.
Sioux City—McLaughlin, P. B.
Secoy, F. L.

KANSAS

Galena—Shelley, A. A.
Creeley—Mills, L. D.
Greensburg—Miller, R. H.
Kansas City—Wilkinson, H.
Larned—Lapat, W.
Pittsburg—Smith, C. H.
Updegrove, W. H.
Wichita—Horn, H. W.
Jones, A. D.
Walker, F. J.

KENTUCKY

Bowling Green—Duncan, J. F.
Glasgow—Turner, C. C.
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Davidson Court—Maguire, J. D.
Louisville—Crandell, L. A.
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Midway—Hawkins, W. H.
Pine Knot—Sievers, R. C.
Robards—Ridley, J. W.
Taylorsville—Shepherd, R. Y.
White Star—Linch, B. C.
Wickliffe—Wickliffe, J. T. P.

LOUISIANA

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Mosenthal, H. O.
Nelson, J. T.
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Oakland—Darby, J. D.

MASSACHUSETTS

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Goffin, J. L. C.
Holland, W. T.
Jones, D. F.
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Haverhill—Coffin, F. H.
Hingham—Wilde, S. P.
Holyoke—Allen, F. H.
Lynn—Goldberg, M.
Northampton—Kenney, T. H.
Pittsfield—Norton, T. J.
Quincy—Reardon, D. B.
Revere—Sandler, F. F.
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Waltham—Curtin, J. J.
West Somerville—Ruston, W. D.
Williamstown—McWilliams, N. B.
Winchester—Maynard, H. E.
Worcester—Boland, D. J.

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Simpson, C. E.
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Jackson—Munro, C. D.
Winter, G. E.

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Hallcock—Wood, J. R.
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Owatonna—Stewart, A. B.
St. Cloud—Kern, M. J.
Winona—Lester, C. A.

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Clarksdale—Carr, I. P.
Cruger—Chester, A. D.
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Underwood, R. H.
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Botts, M.
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Goldberg, D. D.
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Warrenton—Ebeling, A. W.

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Winifred—Sears, J. L.

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Winnebago—Richards, P.

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West Concord—Quinn, C. H.

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Harrison—Kummel, M.
Jersey City—DeFuccio, C. P.
Forman, H. S.
Murphy, E. A.
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Kelley, J. W.
Kelly, T. J.
O'Connor, J. J.
Paul, F. M.
Plainfield—Hubbard, H. V.
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West Hoboken—Ockene, A.
Olpp, A. E.

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Frank, S.
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O'Brien, C. V.
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Rivkin, M.
Tanner, E. K.
Warsaw, S. A.
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Spitzer, S. J.
Splint, F. W.
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Weinmann, J., Jr.
Syracuse—Andrews, G. B.
Utica—Chase, F. T.

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Savage, W. E.
Smith, P. G.
Twachtman, E. R.
Cleveland—Chalat, J. H.
Cobb, P. W.
Ibershoff, A. E.
Columbus—Duffee, W. E.
Hoy, C. D.
Vorhes, J. H.
Dartown—Wilkie, A. B.
Dayton—Sullivan, G. C.
Greenville—Spitler, R. H.
Lima—Jones, A. L.
Mansfield—Wilmuth, C. S.
Metamora—Lathrop, W. L.
Norwalk—Sipher, J. A.
Salem—Mitchell, E. W.
Springfield—Dornblaser, H. B.
Keyser, T. S.
Ultes, W. P.
Toledo—Grosh, L. C.
Sweeney, J. J.
Van Wert—Bartholomew, A. C.
Youngstown—Hamilton, J. K.

OKLAHOMA

Alva—Bilby, G. N.
Atwood—Berninger, W. B.
Beggs—Miner, J. L.
Enid—McKee, E. N.
Idabel—Hill, L. H.
Oklahoma City—Christian, P. C.
Cloudman, H. H.
Riely, L. A.
Vinita—Hughson, F. L.
Waurika—Derr, J. I.

OREGON

Dufin—Dodds, H. C.
Silverton—Kleinsorge, R. E.

PENNSYLVANIA

Bowmansville—Henderson, R. J.
Catasauqua—Kemp, M.
Doylestown—Swartzlander, J. R.
Harrisburg—Dapp, G. A.
Kingston—Wolfe, E. I., Jr.
Lancaster—Miller, S. W.
Leaman Place—Leaman, W. J.
Lebanon—Beattle, J.
Ligonier—Hamill, J. H.
Marcus Hook—Crithers, G. F.
Mercerburg—Bruce, E. W.
Monroe City—Boyer, H. H.
Philadelphia—Boyle, J. P.
Langdon, R. L.
Schmidt, C. F.
Philadelphia—Seiberling, J. D.
Small, W. B.
Pittsburgh—Bianco, A.
Burns, R. G.
Davis, J. R.
Golstein, J. H.
Ingram, C. H.
Keller, S. H.
Lavelle, H. M.
Lindeman, C. E.
Matheny, A. R.
Morris, A. F. B.
Reading—Haws, R. J.
Reedsville—Kohler, B. R.
Scranton—Armstrong, R. H.
Rebhorn, E. H.
Stewartstown—Free, E. M.
Waltersburg—Carothers, J. R.
Washington—Sargent, L. D.
Thompson, A. E.
Wattsburg—Fearn, J. W.

RHODE ISLAND

Providence—Bannan, J. W.
Fearney, F. A.
McAlpine, A. F.

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Columbia—Boone, J. E., Jr.
Whitten, B. O.
Spartanburg—Sparkman, J. R.
Travellers Rest—Langley, C. C.

SOUTH DAKOTA

Lead—Fleeger, R. B.
Watertown—Heraldson, O.

TENNESSEE

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Greenfield—Thomas, G. C.
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Nashville—Erwin, A. L.
Jones, R. L.

TEXAS

Big Springs—Buchanan, L. C. G.
Big Wells—Pickett, B. E.
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Williams, M. C.
Temple—Starnes, M. H.

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Seattle—Jordan, A.

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Richwood—Wright, E. B.

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LaCrosse—Sathe, M. R.
Milwaukee—Darling, W. G.
Darling, W. S.
Gray, A. W.
Kenney, G. F.
Racine—Anderson, J.
Rhinelander—Garner, H. L.
Thorp—Jackey, F. D.
Tomah—Sheehy, T. J.
Wanatosa—Gillis, J. D.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in THE JOURNAL, June 29, July 13, 20 and 27.

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Steinhauser, C.
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Goldsboro—Cox, B. W.

OHIO

Cincinnati—Albers, F. J.
Jones, L. L.

PENNSYLVANIA

Easton—Krebs, S. A.
[illegible] T. A.
[illegible] W.
[illegible] S. L.
Philadelphia—Carp, I. J.
Roberts, N.
Pittsburgh—Linn, J. G.

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San Antonio—Witt, G. F.

VERMONT

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Portsmouth—Nolan, F. F.

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Nickson, D. H.
Shiley, J. R.
Thomson, C. H.
Tacoma—Henry, J. E.

PROMOTIONS

To Be Colonels, Medical Corps, National Army: Lieut.-Cols. CHARLES E. MARROW, A. W. SHOCKLEY, SANFORD H. WADHAMS, HARRY L. GILCHRIST, CHARLES R. REYNOLDS, PAUL C. HUTTON, WM. E. VOSE, ERNEST L. RUFFNER, ROBERT U. PATTESON, MATTHEW A. DELANEY, HERBERT G. SHAW, LOUIS BRECHEMIN, JR., CLEMENT C. WHITCOMB, WM. R. EASTMAN, JAMES L. BEVANS, WM. L. KELLER, HAYWOOD S. HANSELL, JAY W. GRISSINGER, JOHN W. HANNER, JAMES D. FIFE, ROBERT H. PIERSON, JAMES I. MABEE, GEORGE P. REED, RALPH S. PORTER, PERCY L. JONES, CHARLES L. FOSTER, ORVILL G. BROWN, JOSEPH F. SILER, THEODORE LAMSON and ERNEST G. BINGHAM, Medical Corps, U. S. Army; Majors JOHN M. T. FINNEY and WM. S. THAYER, Medical Reserve Corps.

To Be Lieutenant-Colonels, Medical Corps, National Army: Majors GUY V. RUKKE, ARTHUR N. TASKER, HIRAM A. PHILLIPS, HENRY C. COBURN, JR., ARNOLD D. TUTTLE, DANIEL P. CARD, RALPH H. GOLDTHWAITE, FREDERICK S. WRIGHT, DANIEL W. HARMON, JAMES C. MAGEE, NORMAN L. McDIRMID, ROBERT W. KERR, LEON C. GARCIA, ALBERT S. BOWEN, GEORGE M. EDWARDS, GEORGE B. FOSTER, JOSEPH CASPER, HENRY BEEUWKES, EDWARD M. WELLES, JR., WM. H. THEARLE, CHARLES C. DEMMER, LARRY B. McAFEE, ADAM E. SCHLANSER, THOMAS C. AUSTIN, JAMES R. MOUNT, ROYAL REYNOLDS, RALPH G. DEVOE, WIBB E. COOPER, THOMAS L. FERENBAUGH, EDWARD L. NAPIER, FREDERICK H. FOUCAR, ROBERT C. McDONALD, HOWARD CLARKE, CLEMENS W. McMILLAN, HARRY G. FORD, HENRY C. MADDUX, ALBERT P. CLARK and CHARLES E. McBRAYER, Medical Corps, U. S. Army; JOEL E. GOLDTHWAIT, THOMAS W. SALMON, HUGH H. YOUNG, JAMES T. CASE, CHARLES H. PECK, THOMAS H. BOGGS, JAMES F. McKERNON, GEORGE E. BREWER, JOHN H. GIBBON, FREDERICK A. BESLEY, GEORGE W. NORRIS, HARVEY CUSHING, GEORGE W. CRILE, JOSEPH A. BLAKE, JAMES P. HUTCHINSON, NATHANIEL ALLISON, EDWARD L. KEYES, ANGUS McLEAN, RICHARD H. HARTE, ROGER I. LEE, FRED T. MURPHY, WM. E. LOWER, WM. DARRACH, FEDERICK A. WASHBURN, ASTLEY P. C. ASHURST, WARREN L. BABCOCK, COLIN R. CLARK, EDMUND D. CLARK, MARSHALL CLINTON, JOHN B. ELLIOTT, JOSEPH M. FLINT, HOWARD LILIENTHAL, SAMUEL LLOYD, HENRY H. M. LYLE, ROBERT T. MILLER, BURT R. SHURLY, DAVID BARROW, LEONARD G. ROWNTREE, MAZYCK P. RAVENEL, JAMES S. McLESTER and LEWIS A. CONNER, Medical Reserve Corps.

CORRECTION

In the issue of May 4, under the head of "Orders to Officers of the Medical Reserve Corps" appeared the notice of the discharge of Lieut. FRANK E. WHEATLEY of North Abington, Mass., on account of physical disability. We have been informed that the information sent *to us was erroneous.*

ORDERS TO OFFICERS OF THE MEDICAL CQRPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Cody, Deming, N. M., as camp surgeon, *from* Fort Riley, Major JOHN J. REDDY.

To Camp Devens, Ayer, Mass., *to command evacuation hospital*, from Roland Park, Major *GEORGE C. DUNHAM.*

To Camp Dix, Wrightstown, N. J., *for* duty, from Fort Oglethorpe, Lieut. ROBERT J. PLATT.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Col. HENRY PAGE.

To Camp Hancock, Augusta, *Ga.*, for duty, from Camp Sheridan, Major CHARLES C. HILLMAN.

To Camp MacArthur, Waco, Texas, as assistant to *camp* surgeon, from Fort D. A. Russell, Lieut. HENRY C. BIERBOWER. *To command* base hospital, *from San Francisco*, Major ROBERT DURHARDEN.

To Camp Meade, Admiral, Md., as division surgeon, from Fort Riley, Lieut [illegible]

To [illegible]., base hospital, from Camp Sheridan, [illegible]

To [illegible] Ala., as division surgeon, from Camp [illegible] M. SMART.

To [illegible] S. C., *base hospital*, from Camp Hanc[illegible]ES.

To Chicago, Ill., American Medical Association, for duty, in addition *to his other* duties, Major JOHN R. McKNIGHT.

To Fort Du Pont, Del., for duty, from New York, Col. MARLBOROUGH C. WYETH.

To Fort [illegible]m Fort Riley, Col. WILLIAM N. BISPHAM, [illegible] J. FLYNN, HENRY C. PILLSBURY, HC[illegible]; Major CHARLES L. GANDY, Lieuts. JOI[illegible]THEW A. McGARTY, ANDREW W. SMITH.

To Fort Riley as assistant to camp surgeon, from Douglas, Lieut. CORNELIUS O. BAILEY. As division surgeon, from Camp Sherman, Lieut.-Col. GLENN I. JONES.

To Hoboken, N. J., for duty, from Camp Gordon, Lieut. ALBERT W. GREENWELL; from Fort Leavenworth, Lieut. WILLIAM S. McCANN.

To Mineola, L. I., N. Y., for duty, and *on completion to his proper station*, Col. WILLIAM O. OWEN.

To New Haven, Conn., as instructor, from Fort Leavenworth, Lieut.-Col. FERDINAND SCHMITTER, Major SYRUS B. WOOD. To [illegible] a Yale Army Laboratory School, from Fort [illegible]l. CHARLES F. CRAIG.

[illegible] C., for duty in the Surgeon-General's Office, from Fort Meyer, Lieut.-*Col.* SAMUEL J. MORRIS; from Mayo Clinic, Col. CHARLES H. MAYO.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Gordon, Atlanta, *Ga.*, for duty, Lieuts. WILLIAM R. EIDSON, Enterprise; WALTER N. MOORE, Lisman.

To Camp Lee, Petersburg, Va., base hospital, from Camp Logan, Lieut. CARL A. HARRIS, Bessemer. For duty, from *Fort Oglethorpe*, Lieut. ROBERT H. SHEPHERD, Jasper.

To Camp McClellan, Anniston, Ala., base hospital, Lieuts. CLAUDE F. MYERS, NORMAN I. WOOD, Birmingham.

To Fort Monroe, Va., for temporary duty, Major CHARLES A. THIRPEN, Montgomery.

To Fort Oglethorpe for duty, from Fort Riley, Major HARRY T. LAY, *Montgomery*. For instruction, Capt. CHARLES P. MARTIN, Woodstock; Lieuts. HORACE A. LEYDEN, Anniston; ANDREW L. GASTON, Ensley; THOMAS H. DENNY, *Wadley.*

To New York City, Bellevue Hospital, *for* instruction, and *on* completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. CECIL D. GASTON, Birmingham.

To Richmond, Va., for duty, Capt. HAWKINS D. WESTMORELAND, Huntsville.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. HARRY E. HALL, Florence.

The following order has been revoked: *To report by wire to the commanding general*, Southeastern Department, for assignment *to* duty, Lieut. MALCOLM D. SMITH, Prattsville.

Arizona

[illegible] Ohio, for duty, from Fort Riley, Lieut. [illegible]n.

[illegible]ction, from Fort Sill, Lieut. EARL R. [illegible]

To Fort Riley for instruction, from duty as a private, Lieut. JOSEPH W. KEMPFF, Fort Douglas.

Arkansas

To Camp Gordon, Atlanta, Ga., for duty, *from* Fort Riley, Lieut. BERT C. HINER, Evansville.

To Camp Sherman, Chillicothe, Ohio, base hospital, *from* Fort Oglethorpe, Lieut. HENRY K. WADE, Hot Springs.

To Corpus Christi, Texas, for observation and treatment, from Camp MacArthur, Capt. ANTHONY C. THIELLIERE, Varner.

To Fort Riley for instruction, Lieuts. CLEVELAND B. HOLLABAUGH, Leslie; OLIVER C. STRUTHERS, Siloam Springs; JOHN C. HUGHES, Walnut *Springs.*

To Plattsburg Barracks, N. Y., for duty, from Army Medical School, Lieut. JACOB B. HESTERLY, Prescott.

California

To Camp Kearney, Linda Vista, Calif, base hospital, Capts. ERNEST L. COMMONS, GEORGE G. HUNTER, Los Angeles; PHILIP M. SAVAGE, San Bernardino; Lieuts. PERRY N. SIMS, Calexico; FLOYD L. R. BURKS, Fresno; GEORGE T. BOYD, Hollywood; EDWARD W. SEAFORTH, San Francisco; JOSEPH S. COCHRAN, WILLIAM F. PRIESTLEY, Stockton.

To Camp Lewis, American Lake, *Wash., base hospital*, Capts. ELBERT LeR. BIGGS, HOWARD W. SEAGAR, Los *Angeles*; CLARENCE L. SIX, Stockton; *Lieuts.* WALTER W. *DAVIS*, Brea; EDWARD S. DRUCHS, ALVA F. MAINE, *Oakland.*

To Camp Logan, Houston, Texas, base hospital, from San Francisco, Major HERMAN J. SCHLAGETER, San Francisco.

To Camp Sherman, *Chillicothe*, Ohio, for duty, from Fort Riley, Lieut WILLIAM J. MARNEY, Sebastopole.

To Fort Oglethorpe, base hospital, from Camp Dix, Capt. WAYLAND A. MORRISON, Los Angeles; from Fort Riley, Capt. ROBERT C. HOWE, San Francisco. For instruction, Capts. JOHN L. AVFY, *Redlands*; JAMES EAVES, San Francisco; *Lieut.* PHILLIP L. WISE, San Jose.

To Fort Riley for instruction, Capts. *ALBERT W. MOORE*, Los [illegible]R, Salinas; JOSEPH W. PINE, *Eureka*; [illegible]*g Beach*; MONTAGUE CLEEVES, EDWIN [illegible] S. HARTFORD, JOHN H. TEBBETTS, [illegible]MITCHELL, Needles; CHARLES C. ROSS, [illegible]BEATTIE, San Jose.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, Capt. THOMAS H. T. WIGHT, Santa Monica.

To San Francisco, Calif., for instruction and on completion *to Letterman General Hospital*, that place, for duty, Lieut. LLEWELLYN R JOHNSON, Stockton. Letermann General Hospital, for duty, Capt. NEWTON T. ENLOE, Chico; Lieut. ROY N. FULLER, Tulara. On completion *to Canal Zone, for duty*, Capt. JOHN N. FORCE, Los Angeles.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. HARVEY P. CHARLES, Berkeley.

The following order has been revoked: *To Hoboken, N. J.*, for duty, from Fort Oglethorpe, Lieut. TRUSTEN M. HART, Los Angeles.

Canal Zone

To Camp Pike, Little Rock, Ark., base hospital, from the Surgeon-General's Office, Major WILLIAM McC. JAMES, Panama City.

Colorado

[illegible] N. M., base hospital, Capt. BURGETT [illegible]ut. NORBERT H. KNOCH, Denver.

[illegible] Mass., base hospital, *from* New York City, Lieut. [illegible] *Denver.*

To Camp Grant, Rockford, Ill., base hospital, *from Fort Sill, Major* CLARENCE B. INGRAHAM, Denver.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CHARLES E. CONDON, Breckenridge. *For duty, from Fort Riley*, Lieut. LANNING E. LIKES, Lamar.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. JOHN G. WOLF, Pueblo.

To Fort Oglethorpe for instruction, Capts. [illegible]; Boulder; HENRY W. WILCOX, Lieut. LESL[illegible]; from Fort Riley, Lieut. VARDRY A. HUTTON, [illegible]

To Fort Riley for instruction, Lieut. ELBERT S. WAYMIRE, Denver.

To New Haven, Conn., for duty, Lieut. EDGAR D. DOWNING, Woodman.

To *Rockefeller Institute* for instruction in bacteriology, and on completion *to Army Medical School* for duty, Capt. PHILIP HILLKOWITZ, Denver.

The following order has been revoked: *To Camp Cody*, Deming, N. M., base *hospital*, Lieut. *NORBERT H. KNOCH, Denver*.

Connecticut

To Camp A. A. Humphreys, *Accotink*, Va., base *hospital*, Capt. HEMAN A. TYLER, Hartford.

To Camp Hancock, Augusta, Ga., to examine *the command for nervous* and mental diseases, Lieut. GEORGE McM. MELVIN, Middleton.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Mayo Clinic, Lieut. GEORGE M. SMITH, *Waterbury.*

To Fort Oglethorpe for instruction, [illegible] UDDER, [illegible]LIOT S. COGSWELL [illegible] J. St. [illegible]en; ARTHUR [illegible]bury.

[illegible], *N. Y.*, for duty, from Mineola, Lieut. HART[illegible], Hartford; from San Antonio, Lieut. ARTHUR [illegible]bury.

[illegible], for observation and treatment, Lieut. LEWIS [illegible]ingford.

[illegible]a., for duty, from Camp Sevier, Lieut. MARMA[illegible], Marbledale.

[illegible]*tute* for instruction, and on completion *to Fort Oglethorpe for instruction*, Major JOSIAH M. SLEMONS, *New Haven.*

District of Columbia

To Camp Custer, Battle Creek, *Mich.*, with *the* board *examining the* command for nervous and mental diseases, Lieut. BERNARD GLUECK, Washington.

To Camp Dix, Wrightstown, N. J., for duty, Lieut. FRANK D. ADAMS, Washington.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Major HENRY T. PRICE, *Washington.*

To Fort Oglethorpe for duty, from Fort Riley, Capt. LEONARD P. BELL, Washington. For instruction, *Major* CLARENCE M. DOLLMAN, Capt. HENRY C. COOK, LOUIS A. JOHNSON, *Lieut.* DANIEL B. MOFFETT, Washington.

To Hot Springs, N. C., for duty, from Washington, Major JOSEPH M. HELLER, Washington.

To New Haven, Conn., for duty, Lieut. JAMES L. ANDERSON, Washington.

To Newport News, Va., for temporary duty, Lieut. JOSEPH R. DARNALL, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Jackson, Columbia, S. C., base hospital, Lieut. SIMON R. KARPELES, Washington.

Florida

To Camp Jackson, Columbia, S. C., base hospital, Lieut. ROSCOE H. KNOWLTON, St. Petersburg.

To Camp Lee, Petersburg, Va., base hospital, from Camp Logan, Capt. FRANK F. FERRIS, Apalachicola.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. PARSONS M. GARCIA, West Tampa.

To Fort Oglethorpe for instruction, Lieut. ELLSWORTH C. BRUNNER, Miami.

To Lakewood, N. J., for duty, from Camp Wheeler, Capt. JULIAN E. CAMMON, Jacksonville.

Georgia

To Richmond, Va., for duty, Lieut. HENRY M. SMITH, Chattahooche.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. LUCIUS LAMAR, Dawson.

To Camp Gordon, Atlanta, Ga., for duty, Lieut. GUY G. LUNSFORD, Weston.

To Camp Greene, Charlotte, N. C., base hospital, from Army Medical School, Lieut. SAMUEL LICHTENSTEIN, Augusta.

To Camp Lee, Petersburg, Va., base hospital, from Camp Jackson, Lieut. GEORGE H. LANG, Savannah.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. ERNEST CORN, Macon.

To Fort Slocum, N. Y., as orthopedic surgeon, from Camp Dix, Lieut. HENRY J. PEAVY, Byron.

To Hoboken, N. J., base hospital, from Camp Crane, Lieut. JOHN R. TURNER, Temple. For duty, Major RUFUS T. DORSEY, Atlanta; Capt. ROBERT B. RIDLEY, Decatur.

To Rockefeller Institute for instruction, and on completion *to Camp Jackson*, Columbia, S. C., base hospital, Capt. WILLIAM B. CRAWFORD, Savannah. For instruction in bacteriology, and on completion *to his proper station*, from Camp Joseph E. Johnston, Lieut. PAUL H. CHRISTIAN, Columbus.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. RICHARD BINION, Sparta.

Idaho

To Camp Leach, American University, Washington, D. C., for duty, from Fort Riley, Lieut. OWEN D. PLATT, St. Maries.

To Camp Lewis, American Lake, Wash., base hospital, Capt. ADRAM M. NEWTON, Poccatello.

To Fort Oglethorpe for duty, from Fort Riley, Capt. DONALD S. NUMBERS, Parma. For instruction, Capt. RICHARD E. SHURTZ, Boise.

To Fort Riley as sanitary inspector, from Fort Riley, Capt. WILLIAM H. TUKEY, Emmett. For instrucction, Lieut. JOHN DIMON, Elk River.

To report by wire to the commanding general, Western Department, for assignment to duty, Lieut. EDWARD D. PIPER, Jerome.

Illinois

To Army Medical School for instruction, Lieuts. ARTHUR L. BEYERLEIN, Chicago; from Camp Wheeler, Lieut. CHARLES H. MANLOVE, Jr., Chicago.

To Baltimore, Md., Johns Hopkins University, for duty, from Biltmore, Major EVARTS A. GRAHAM, Chicago.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieuts. CHARLES B. ALEXANDER, Chicago; HENRY M. BOIES, Strawn; from Camp Sevier, Lieut. ALFRED A. WILLANDER, Rockford; from Fort Brady, Capt. CHARLES J. POOLE, Mt. Vernon; from Fort Oglethorpe, Capt. CORYDON DeK. BUNDY, Sadorus.

To Camp Gordon, Atlanta, Ga., for duty, from duty as a private, Lieut. ELI LEVIN, Chicago; from Fort Riley, Lieut. GWYN F. HAIG, LeRoy.

To Camp Grant, Rockford, Ill., base hospital, Lieuts. RAY M. FOUTS, SAMUEL J. PEARLMAN, Chicago; from Fort Oglethorpe, Capt. FRENCH S. CARY, Chicago; from Fort Sill, Lieuts. ROY D. SHORT, Melrose Park; HOBART C. RUDDICK, Sandoval. For duty, from Fort Riley, Lieuts. LEON P. KOZAKIEWICZ, WILLIAM RUPP, Chicago.

To Camp Jackson, Columbia, S. C., base hospital, Capt. HORATIO N. BOSHELL, Melvin; Lieut. ERWIN F. DUDLEY, Sandwich; from Army Medical School, Capt. OSCAR T. SCHULTZ, Chicago; from Camp Sherman, Capt. JOHN W. EAREL, Quincy.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Doniphan, Capt. JOHN C. FOLEY, Waukegan. For duty, from Fort Oglethorpe, Lieut. RAYMOND J. JOSEPH, New Athens.

To Camp Lee, Petersburg, Va., base hospital, from Camp McClellan, Major CHARLES A. STEVENS, Chicago. For duty, Lieut. LOUIS A. LOEWENBERG, Chicago; from Fort Oglethorpe, Lieut. GEORGE M. SEGAL, Chicago.

To Camp MacArthur, Waco, Texas, base hospital, Capt. ARTHUR H. WEIS, Chicago.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. ALBERT N. MUELLER, Rock Island.

To Camp Meade, Admiral, Md., as assistant to the division surgeon, from Fort Riley, Lieut. EUGENE W. FISKE, Evanston.

To Camp Upton, L. I., N. Y., base hospital, from Camp MacArthur, Lieut. EDMUND T. DOUGLAS, Hillsboro. For duty, Lieut. HALLOCK B. WARREN, Breese.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. LESTER E. MEE, Wilmette; from Camp Dodge, Capts. GEORGE H. MILLER, IRVING PERRILL, Chicago. For duty, from Fort Oglethorpe, Lieut. CHARLES HIBBE, Springfield

To Canal Zone, for duty, from Camp Grant, Lieut. WILLIAM H. GEHL, Chicago.

To Chicago. Ill., for instruction, Lieut. JOHN E. BENTLEY, Chicago.

To Fort McHenry, Md., for duty, from Fort Oglethorpe, Major SIDNEY STRAUSS, Chicago.

To Fort Oglethorpe, base hospital, from Camp Devens, Lieut. LOUIS H. HAYES, Alton. For duty, from Fort Riley, Majors ELLIS K. KERR, RALPH W. WEBSTER, CHARLES H. S. WILLIAMSON, Capts. MICHAEL L. GALLAGHER, HARRY S. NORTON, Lieut. ISAAC J. FRISCH, Chicago. For instruction, Capts. CHARLES S. AITKEN, GEORGE L. DAVENPORT, WILLIAM A. PORTER, Chicago; WILBERT F. McNARY, East St. Louis; ALBERT H. WALES, Lanark; JAY H. BACON, Peoria; ALBERT C. ASCHAUER, Springfield; CLYDE F. HORNER, Tiskilwa; Lieuts. GILBERT H. GALFORD, Bloomington; JAMES H. SMITH, Canton; LEAF C. KNIGHT, Carthage; CHESTER J. CHALLENGER, JOHN B. CIPRIANI, CLARENCE H. COURTNEY, YNGVE JORANSON, GEORGE M. LANDAU, MICHAEL F. McGUIRE, SIDNEY M. ROBERTS, NICHOLAS WOLMAN, Chicago; CHESTER M. TAYLOR, Decatur; PAUL R. RADGER, Kankakee; WILLIAM F. JUSTUS, Littleton; MARK H. TIBBETTS, Shirland; JOHN F. DEAL, Springfield; from Fort Riley, Lieut. HENRY S. BENNETT, Moline; from Fort Sill, Capt. HARRY A. WARE, Chicago. To examine the command for nervous and mental diseases, Capt. CHARLES B. CALDWELL, Peoria.

To Fort Riley for instruction, Capts. CHARLES S. DAVIS, Champaign; GEORGE F. JOHNSON, East Moline; WALTER BURGESS, Pana; WILLIAM A. HINCKLE, Peoria; HENRY F. DICE, Ridgefarm; HOWARD R. HESS, Tiskilwa; Lieuts. ORVILLE J. SLOAN, Chatsworth, PETER S. CLARK, ANTHONY C. FORMUSA, JOSEPH H. JOHNSON, Chicago; DAVID B. FREEMAN, Moline; JOSEPH M. DOWNS, Morrison; EMIL Z. LEVITIN, Peoria; GLEN R. INGRAM, Tuscola; DeW. LOOMIS, Warsaw.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Capt. WALTER G. BAIN, Springfield; Lieuts. FRED C. CALDWELL, Chicago; HENRY E. LUTYENS, Farmingdale; HERMAN L. LE SAULNIER, Red Bud. For instruction in the treatment of infected wounds, and on completion *to New York City*, Bellevue Hospital, for further instruction, and on completion *to his proper station*, Capt. WILLIAM H. MALEY, Galesburg. On completion *to his proper station*, from Camp Lee, Lieut. EVERETT E. HOWARD, Rossville.

To Washington, D. C., for duty in the Surgeon-General's Office, from Fort Riley, Major FREDERICK R. GREEN, Chicago.

To the inactive list, from the Surgeon-General's Office, Majors ALBERT J. OSCHNER, DANIEL A. K. STEELE, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JOHN F. TAYLOR, Buda.

Resignation of Lieut. RALPH B. SCOTT, Venice, accepted.

The following orders have been revoked: *To Fort Des Moines, Ia.*, base hospital, Capt. RUFUS W. BISHOP, Chicago. *To Williamsbridge, N. Y.*, for observation, treatment, and report, Capt. HART E. FISHER, Chicago.

Indiana

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. JOSEPH F. GILLESPIE, Greencastle; CHARLES J. COOK, Indianapolis; PIERRE G. FERMIER, Leesburg.

To Rockefeller Institute for instruction in laboratory work, and on completion to Army Medical School for duty, from Camp Lee, Lieut. EDWIN M. KIME, Indianapolis.

To Washington, D. C., for duty, Lieut. WILLIAM A. HOLLIS, Hartford City.

To Camp Meade, Admiral, Md., base hospital, Capt. JOHN M. FOUTS, Richmond; Lieut. JOHN L. GLENDENING, Indianapolis.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. HERBERT L. BUCKLES, Hartford City.

To Camp Upton, L. I., N. Y., for duty, Lieut. SAMUEL A. SMOOTS, New Middletown.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. ARCHIE F. SCHULTZ, Lafayette.

To Fort Benjamin Harrison, base hospital, Capt. JOHN T. WHEELER, Indianapolis; Lieut. GEORGE B. HUNT, Richmond.

To Fort McPherson, Ga., for duty, from Camp Gordon, Capt. MERTON A. FARLOW, Milroy.

To Fort Oglethorpe for duty, from Fort Riley, Major MAURICE H. KREBS, Huntington. For instruction, Major FRANK B. HUMPHREYS, Angola; Capts. JAMES B. YOUNG, Cumberland; SAMUEL W. HERVEY, Fortville; CHARLES M. GIBBS, Greenfield; JULIUS A. CHEVIGNY, Hammond; JOHN W. SHAFER, Lafayette; JOHN T. McFARLIN, Williams; Lieuts. JOHN C. ARMINGTON, Anderson; TERENCE E. DARNELLE, Ashley; CHARLES C. MARSHALL, Aurora; CHARLES H. SCHENK, Berne; FRED A. METTS, Bluffton; HARRY M. PELL, Brazil; PEARL R. BENNETT, Bridgeton; ALFRED B. COYNER, Chalmers; WILLIAM E. AMY, Corydon; EDWARD H. W. KUPKE, Francesville; SAMUEL PEARLMAN, EARL VAN REED, LaFayette; LUTHER H. RATLIFF, Lawrence; UTHIE R. WILSON, Lynnville; WILLARD B. ASHBY, Oakland City; SCHUYLER F. TEAFORD, Paoli; MARK M. MORAN, Portland; MERLE D. GWIN, Rensselaer; from Fort Riley, Lieut. ROBERT C. SHANKLIN, South Bend.

To Hoboken, N. J., for duty, Lieut. FRANK H. MERVIS, Indiana Harbor.

To New Haven, Conn., for duty, Lieuts. EDWARD J. RICHSTEIN, Princeton; JOSHUA M. GORDON, South Bend. Yale Army Laboratory, for instruction in bacteriology, Lieut. FRANK P. HUNTER, La Fayette.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. HENRY C. BRAUCHLA, Indianapolis.

Iowa

To Camp Sevier, Greenville, S. C., base hospital, from Camp Beauregard, Lieut. ARLO R. ZUERCHER, Cedar Rapids.

To Camp Wheeler, Macon, Ga., as assistant to camp surgeon, from Fort Riley, Capt. HARRY R. REYNOLDS, Clinton.

To Camp A. A. Humphreys, Accotink, Va., base hospital, Lieut. EGBERT W. SPROULE, Peterson.

To Camp Bowie, Fort Worth, Texas, base hospital, Major WILLIAM JEPSON, Sioux City. For duty, from Fort Clark, Capt. WILLIAM M. WILDMAN, Fort Dodge.

To Camp Cody, Deming, N. M., base hospital, Capt. JOHN F. STUDEBAKER, Fort Dodge.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capts. NELSON McP. WHITEHILL, Boone; ERLE D. TOMPKINS, Clarion; Lieut. IRA J. GIBSON, Fontanelle.

To Fort Oglethorpe for duty, from Fort Riley, Major CLARENCE VAN EPPS, Iowa City; Capt. FRANCIS R. HOLBROOK, Des Moines; Lieuts. KENNETH E. MONTGOMERY, Lawrenceville; WALTER E. DRAPER, Manilla. For instruction, Capts. HARRY N. McCALL, Clearfield; CHARLES A. KEARNEY, Dubuque; JOHN M. GARRETT, Fort Dodge; Lieuts. ARTHUR M. WASHBURN, Burlington; HERMAN L. VON LACKUM, Dysart; SUMMER B. CHASE, Fort Dodge; WILLIAM H. JOHNSTON, Muscatine; from Fort Riley, Lieuts. SIDNEY B. BELLINGER, Council Bluffs; ALEXANDER P. STEWART, Inwood.

To Fort Riley for instruction, Capts. CHARLES S. KENNEDY, Logan; SYLVESTER E. HINSHAW, Newton; RICHARD HICSENGA, Rock Valley; Lieuts. FREDERICK H. RODEMEYER, Alexandria; LEO A. NELSON, Allerton; PAUL O. ANDERSON, Bouton; GEORGE H. STEINLE, Burlington; JAMES H. BRUCE, Dickins; RUPERT C. HERRICK, Gilmore City; JOHN R. WRIGHT, Knoxville; ROBERT S. SHANE, Pilot Mound; FRANK H. DIERKER, West Point; EDWIN R. WHEELER, Zwingle.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. LONNIE A. COFFIN, Farmington.

To New Haven, Conn., Yale Army Laboratory School, as instructor, from Fort Leavenworth, Major GUTHRIE McCONNELL, Waterloo. For instruction in bacteriology, Lieut. MATTHEW T. MORTON, Estherville.

To Newport News, Va., for duty, from Fort Riley, Lieut. LONNIE A. COFFIN, Farmington.

To Otisville, N. Y., for temporary duty, from Camp Hancock, Capt. WILLIAM L. HEARST, Cedar Falls.

To Talmage, Calif., Mendocino Hospital, for intensive training, Lieut. HAROLD E. FARNSWORTH, Galva.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. LESLIE L. CARR, Clermont.

Kansas

To Camp Logan, Houston, Texas, base hospital, Major HENRY W. HORN, Wichita; Capt. LEROY W. BAXTER, Columbus; from Camp MacArthur, Lieut. ALEXANDER B. SCOTT, Bucklin.

To Camp MacArthur, Waco, Texas, for duty, Capt. JOHN H. RINEHART, Quinter; Lieut. WILLIAM H. UPDEGROVE, Pittsburg.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Riley, Lieut. EUGENE J. BRIBACH, Atchison.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. GEORGE H. HOBSON, Lieut. WILLIAM J. GATES, Kansas City.

To Fort Oglethorpe for duty, from Fort Riley, Major JIRAH M. DOWNS, Ellsworth. For instruction, Capt. GEORGE A. LANDES, Parsons; Lieut. ENRY R. SCATES, Kansas City; OTTO J. DIXON, Mound Valley; CALTEN B. GRISSOM, Syracuse; from Fort Riley, Lieut. EVERETT W. JOHNSON, Coffeyville.

To Fort Riley for instruction, Capts. CLARENCE E. KINLEY, Fort Dodge; WILLIAM F. NIENSTADT, Hartford; Lieuts. HUGH M. BARNES, Blue Mound.

To New Haven, Conn., Yale Army Laboratory, for instruction in bacteriology, Lieut. CHAUNCEY A. McKINLAY, Wichita.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. JAMES WELCH, Herrington; WILLIAM S. GRISSELL, Ransom.

Kentucky

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. WALTER F. McCROCKLIN, Louisville.

To Camp Lee, Petersburg, Va., base hospital, from Camp Zachary Taylor, Lieut. WILLIAM C. STIRLING, Jr., Louisville. For duty, Lieut. JOHN R. WEBB, Littrell.

To Camp Pike, Little Rock, Ark., to examine the command for nervous and mental diseases, Capt. WALLIS W. DURHAM, Crofton.

To Camp Sevier, Greenville, S. C., for duty, from Camp Dodge, Lieut. ELMORE B. BACKSMAN, Newport.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Custer, Capt. BENJAMIN F. ZIMMERMAN, Louisville; from Camp Lee, Lieut. CLIFFORD N. HEISEL, Covington; from Camp Sheridan, Lieut. MICHAEL J. HENRY, Louisville; from Camp Sherman, Capt. ELMER L. HENDERSON, Louisville; from Camp Zachcary Taylor, Capt. JOHN B. RICHARDSON, Louisville.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. CHARLES H. MOORE, Canmer.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Riley, Capt. GEORGE A. ROBERTSON, Louisville.

To Fort Riley for instruction, Lieut. ARTHUR D. DONNELLY, Bowling Green.

To Fort Thomas, Ky., for duty, from Camp Sherman, Capt. MEREDITH W. HYATT, Springfield.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Capt. ROBERT H. HEARNE, Paducah.

To Rockefeller Institute for instruction, and on completion *to Camp Meade*, Admiral, Md., base hospital, Lieut. JAMES W. MARTIN, La Centre. On completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Capt. WILLIAM H. SMITH, Danville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. RODMAN H. WILLIAMS, New Hope.

Louisiana

To Camp Beauregard, Alexandria, La., from Jackson Barracks, Lieut. ARTHUR W. RHYNE, New Orleans.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. ALBERT S. COOPER, Mansfield.

To Camp Grant, Rockford, Ill., base hospital, from Fort Sill, Lieut. ALBERT C. JACKSON, New Orleans.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. ARCHIBALD C. KAPPEL, Franklin.

To Camp Logan, Houston, Texas, base hospital, from Fort Bayard, Lieut. JOSEPH R. D'AUNCY, New Orleans.

To Camp MacArthur, Waco, Texas, for duty, Lieut. WILLIAM N. HANKINS, Derry.

To Camp Sevier, Greenville, S. C., base hospital, from Camp MacArthur, Lieut. GEORGE M. JONES, New Orleans.

To Fort Oglethorpe for duty, from Fort Riley, Lieut. HARRY JENKINS, Churchpoint. For instruction, Capts. ANATOLE R. TRAHAM, Lafayette; STUART L. WHITE, Ruston; Lieut. FRED HAMILTON, Jena.

To Fort Riley for instruction, Lieut. CLAUDE E. BORDENAVE, New Orleans.

To Washington, D. C., for duty in the Surgeon-General's Office, from New Orleans, Major ISADORE DYER, New Orleans.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ABRAHAM MATTES, New Orleans.

Maine

To Camp Wadsworth, Spartanburg, S. C., to examine the command for nervous and mental diseases, from Camp MacArthur, Major FRANK E. LESLIE, Andover.

To Fort Oglethorpe for instruction, Capt. LEWIS L. MANN, Augusta, Lieut. JOHN H. FOSTER, Farmington.

To Williamsbridge, N. Y., for duty, Lieut. ROLAND L. McKAY, Augusta.

Maryland

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. HENRY S. MITCHELL, Oakland.

To Camp Cody, Deming, N. M., for temporary duty, from Camp Lee, Lieut. THOMAS M. RIVERS, Baltimore.

To Camp Colt, Gettysburg, Pa., for duty, from Fort Oglethorpe, Lieut. HAROLD W. SHUTTER, Baltimore.

To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, from Fort Oglethorpe, Lieut. WILLIAM C. CHANEY, Chaney.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Jackson, Lieut. GEORGE R. WILKINSON, Baltimore.

To Camp Lee, Petersburg, Va., for duty, Lieut. WILLIAM H. HOUSTON, Fishing Creek.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Capt. GEORGE M. LINTHICUM, Baltimore.

To Rockefeller Institute for instruction in chemistry and bacteriology, and on completion *to Army Medical School*, for instruction, Lieut. RALPH E. MYERS, Carroll Park.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. HORACE McM. BANKS, Baltimore.

The following order has been revoked: *To Fort McPherson, Ga.*, for temporary duty, Capt. JAMES M. H. ROWLAND. Baltimore.

Massachusetts

To Camp Hancock, Augusta, Ga., for duty, from Camp Sevier, Capt. FRANK E. STETSON, New Bedford.

To Camp Lee, Petersburg, Va., for duty, Capt. JOSEPH S. LEBOEUF, Fall River; from Camp Meade, Lieut. MARTIN W. PECK, Marblehead; from Fort Oglethorpe, Lieut. MILES M. HAMBURG, Waltham.

To Camp Upton, L. I., N. Y., base hospital, Lieut. EDWARD I. TABOR, Lowell. For duty, Lieut. MORRIS F. KAUFMAN, Norwood.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Hancock, Lieut. DAVID W. HOUSTON, Jr., Boston.

To Fort Oglethorpe, base hospital, from Camp Devens, Major FRANKLIN G. BALCH, Lieuts. NEIL A. FOGG, HORACE K. SOWLES, Boston; from Camp McClellan, Lieuts. KENNETH L. WOLE, THOMAS H. LANMAN, Boston; from Camp Wadsworth, Capt. JAMES R. TORBERT, Boston. For instruction, Capts. JESHUA W. CLARKE, Attleboro; CHARLES B. DARLING, Boston; GEORGE A. GRIEUMARD, Fitchburg; GEORGE A. COOKE, Montague; JESSE H. LIBBY, Weymouth; GEORGE H. HILL, Worcester; Lieuts. MAURICE A. GILBERT, SAMUEL L. MARNOY, Chelsea; LORNE W. HARRIS, Cliftondale; EDWIN P. RUGGLES, Dorchester; AUSTIN E. ST. CLAIR, Framingham; EDWARD J. SAWYER, Gardner; DAVID A. GARBELNICK, Haverhill; FRANCIS A. O'SULLIVAN, Lowell; HAROLD E. DIEHL, Quincy; CHARLES C. PARKER, Jr., Roxbury; JOHN M. GILCHRIST, NEBUTHER HOLDEN, Springfield; GEORGE C. ANTHONY, Wellesley, ROBERT E. MERRITT, Wollaston.

To Hoboken, N. J., base hospital, from Walter Reed General Hospital Lieut. GEORGE L. CURRAN, North Adams.

To New Haven, Conn., for duty, Lieut. NATHANIEL J. HEYWOOD, Williamsett; Yale Laboratory School, for instruction in bacteriology, Lieut. GEORGE L. BUNNELL, Foxboro.

To New York City, Bellevue Hospital, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Capt. STANLEY C. COX, Holyoke. On completion *to Camp Sevier*, Greenville, S. C., base hospital, Lieut. CECIL N. BRADY, Newton.

Michigan

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Riley, Major PETER D. MACNAUGHTON, Calumet.

To Camp Custer, Battle Creek, Mich., as sanitary inspector, from Camp Custer, Major ROLLIN C. WINSLOW, Sault Ste Marie. Base hospital, Capt. ROY T. URQUHART, Grand Rapids.

To Camp Devens, Ayer, Mass., base hospital, from New York, Capt. MATTHEW KOLLIG, Saginaw.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. EDWARD GOODWIN, Bay City.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. FREDERIC C. WARNSHUIS, Grand Rapids.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp MacArthur, Capt. JOHN P. BLAND, Adrian.

To Fort Oglethorpe for duty, from Fort Riley, Major WILLIAM N. KENZIE, Richland; Capt. OTIS B. MALLOW, Detroit. For instruction, Capts. RUDOLPH J. E. ODEN, Cadillac; CLARENCE D. CHAPIN, Columbiaville; JULIUS F. PEPPLER, Grand Rapids; Lieuts. ALBERT E. BRYANT, JOHN D. MONROE, Detroit; THEODORE P. VANDER ZALM, Grand Haven; RUDOLPH R. MILLER, Harbor Springs; DON C. McCOWAN, Mecosta; FRANK W. HANNUM, Muskegon; from Camp Custer, Lieut. ROLAND S. CRON, Ann Arbor.

Minnesota

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Capt. JENNER P. CHANCE, International Falls.

To Camp Cody, Deming, N. M., for temporary duty, from Hoboken, Capt. FRANCIS G. BLAKE, Minneapolis.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. HENRY B. GRIMES, Madelia; Lieut. GERALD C. ROSKILLY, Deer Creek.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. THOMAS EDWIN FLINN, Redwood Falls.

To Camp Grant, Rockford, Ill., for duty, Lieuts. OSCAR E. NELSON, Minneapolis; DALE D. TURNCLIFF, St. Paul.

To Camp Greene, Charlotte, N. C., base hospital, Capt. WINSLOW C. CHAMBERS, Blue Earth; Lieut. BERNARD S. BOHLING, Sandstone.

To Fort Oglethorpe for instruction, Major ALEXANDER R. COLVIN, St. Paul; Capts. FREDERICK H. ROLLINS, St. Charles; THOMAS J. MALONEY, St. Paul; Lieut. GUSTAV. T. NORDIN, Minneapolis; from Fort Riley, Lieuts. ERNEST W. COWERN, EDWARD SCHONS, St. Paul; SETH E. GILKEY, Watson.

To Fort Ontario, N. Y., base hospital, from Camp Kearney, Capt. HUGH S. WILLSON, Minneapolis.

To Fort Riley for instruction, Capts. MARION M. HURSH, Grand Rapids; CHARLES E. FAWCETT, Stewartsville; Lieuts. WILLIAM J. KUCERA, Hutchinson; GUSTAV M. HELLAND, Spring Grove.

To Matuchen, N. J., for duty, from Fort Oglethorpe, Lieut. THOMAS J. TRUTNA, Silver Lake.

To New Haven, Conn., for duty, Capt. ROBERT L. HUBERT, St. Paul.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School,* for duty, from Fort Snelling, Lieut. WILLIAM J. CARSON, St. Paul.

To Washington, D. C., for temporary duty in the Surgeon-General's Office, Capt. ARTHUR S. HAMILTON, Minneapolis. St. Elizabeth's Hospital, for intensive training, Lieut. WALTER B. MARTIN, Fergus Falls.

Resignation of Lieut. THEODOR BRATRUD, Warren, accepted.

Mississippi

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Capt. INMAN W. COOPER, Jr., Meridian.

To Fort Oglethorpe, base hospital, from Camp Dix, Lieut. EMILE O. WITHERS, Michigan City. For instruction, Capts. HENRY L. FLAKE, Meridian; JAMES B. MAGEE, Prentiss; Lieuts. DANIEL C. MONTGOMERY, Greenville; FERN CHAMPENOIS, Hattiesburg; HUGH Z. BROWNE, Kosciusko; HUGH D. GAYDEN, Leland; WILLIAM C. NORRIS, Quitman; MORRIS J. ALEXANDER, Tunica.

To Hoboken, N. J., base hospital, from Camp Sevier, Lieut. KUTCHEN T. KLEIN, Meridian.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Fort Sill, Lieut. JOSEPH T. IRBY, Enterprise.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. JOSEPH D. SAULS, Clarksdale.

Missouri

To New Haven, Conn., for duty, Lieut. ERNEST J. BUTZKE, Bowling Green.

To New York City, Hospital for Ruptured and Crippled, for instruction, from Fort Oglethorpe, Lieut. WILLIAM C. VERNON, Kansas City.

To report by wire to the commanding general, Central Department, for assignment to duty, Capts. WILLIAM P. DYSART, Columbia; GEORGE E. CECIL, Flat River; FRANK BOOGHER, JOSEPH L. MEREDITH, St. Louis; Lieuts. ARTHUR J. DECKER, Gray Ridge; EDMUND L. HARRISON, STEPHEN H. RAGAN, FRANKLIN F. SHARON, Kansas City; WELLMAN F. CHAFFIN, Raymore; DAVID N. DABBS, Rocky Comfort; WILLIAM J. BILLETER, Bynumville.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Lieut. AHBRUM M. GOLDMAN, Kansas City.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. CHARLES N. HAHN, Dunnigan; WILLIAM T. DEAN, St. Louis; FLOYD B. RICKETTS, Union.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. GEORGE A. TELFER, St. Louis.

To Camp MacArthur, Waco, Texas, base hospital, Capt. FRANKLIN E. JACOBI, St. Louis. For duty, Capts. WALTER R. CARY, FREDERICK T. VAN EMAN, Kansas City; Lieuts. GEORGE T. TWYMAN, Independence; AMBROSE E. POTTER, Springfield.

To Camp McClellan, Anniston, Ala., base hospital, Capt. JAMES L. ROBERTS, Kansas City; Lieut. BOHUMIL J. WIESNER, St. Louis.

To Camp Meade, Admiral, Md., base hospital, Capt. FREDERICK C. ESSELBRUEGGE, St. Louis.

To Camp Pike, Little Rock, Ark., with the board examining the command for nervous and mental diseases, Lieut. THOMAS N. TOOMEY, St. Louis.

To Camp Sheridan, Montgomery, Ala., as orthopedic surgeon, from Lakewood, Capt. GREENE D. McCALL, Fulton.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. THOMAS C. RICHARDS, Fayette.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capts. JOHN D. PORTERFIELD, Cape *Girardeau*; ARTHUR R. TIMERMAN, St. Joseph; Lieuts. WERNER H. WAGNER, Berger; JAMES F. CLANCY, St. Louis.

To Camp Upton, L. I., N. Y., for duty, from Fort Riley, Lieut. ALLEN G. SCOTT, Cardwell.

To Dallas, Texas, Signal Corps Aviation School, for duty, from Kansas City, Lieut. SAM E. ROBERTS, Kansas City.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. FRANK McC. POSTLETHWAITE, Kansas City.

To Fort Olgethorpe for duty, from Fort Oglethorpe, Major WILLIAM L. McBRIDE, Kansas City. For instruction, Capts. CHARLES C. SIMMON, Bunker; CLARENCE S. CAPELL, CLYDE O. DONALSON, ROBERT N. MORRIS, CLINTON C. RHODES, Kansas City; Lieuts. WILLIAM B. LEVENS, Creighton; CLINTON C. KLEINSCHMIDT, JOHN O'CONNELL, FREDERICK C. SCHWARTZ, ANTHONY O. YOUNG, St. Louis.

To Fort Ontario, N. Y., base hospital, from Camp MacArthur, Lieut. MERRILL N. SMITH, Fayette.

To Fort Riley for instruction, Capts. GLOVER F. ALTON, Gashland; ERNEST H. CARPENTER, Helena; CHARLES C. DRACE, Holcomb; JOSEPH G. BEATY, Huntingdale; IRWIN E. RUHL, Kansas City; WILL K. STATLER, Oakridge; EDWIN F. JAMES, Springfield; FRED H. LADD, St. Joseph; EDWARD H. EYERMAN, St. Louis; Lieuts. RICHARD G. HEREFORD, Ashley; TERRENCE P. GRONOWAY, Bevier; WILLIAM L. ABNEY, Blackwater; JOHN C. OTTMAN, Craig; JOSEPH H. STAPP, Hardin; JOHN A. CHENOWETH, Joplin; WILLIAM F. BYLER, CHESTER M. COUNSELL, GEORGE A. RUSH, ABRAHAM WEINBERG, Kansas City; ROBIN J. GUY, Paynesville; TYRE H. HALE, LEWIS E. MISSIMORE, ALBERT A. MULACH, NATHANIEL N. YAHLEN, St. Louis; ROBERT J. JENNINGS, Windsor.

To Fort Sheridan, Ill., as orthopedic surgeon, from Fort Slocum, Lieut. EDWARD L. COOLEY, St. Louis.

To Garden City, L. I., N. Y., for duty, from Dallas, Lieut. JOSEPH J. REILLY, St. Louis; from Fort Oglethorpe, Lieut. FRANCIS H. J. OSBORNE, St. Louis.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. JOHN A. POWERS, Warrensburg.

To Williamsbridge, N. Y., for duty, Lieuts. CHARLES A. ORR, Ash Grove; JAMES A. FARRELL, St. Louis.

Honorably discharged on account *of physical* disability existing prior to entrance into the service, Lieut. EDWARD FORD, Bloomfield.

Resignations of Lieuts. DAVID N. DUBBS, Rocky Comfort; FENTON N. GOODSON, St. Joseph, and ALBERT A. GEBHARDT, St. Louis, accepted.

Montana

To Camp Colt, Gettysburg, Pa., for duty, from Camp Wadsworth, Lieut. ALBERT A. PASTENE, Chester.

To Camp Fremont, Palo Alto, Calif., for duty, Capt. EDWIN C. ANDERSON, Missoula.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dodge, Major THOMAS C. WITHERSPOON, Lieut. HAROLD SCHWARTZ, Butte.

To Fort Douglas, Utah, for duty, Lieut. LOREN G. SHROAT, White Sulphur Springs.

To Fort Oglethorpe for instruction, Capt. ALLEN G. FULLER, Missoula.

To Fort Riley for instruction, Lieuts. BENJAMIN I. TOWNSEND, Crow Agency; CORTLANDT W. DAWE, Great Falls; LAWRENCE STEVENS, Laurel.

To Mount Clemens, Mich., Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. WEAVER B. ROGERS, White Sulphur Springs.

To Whipple Barracks, Ariz., for duty, Capt. LOUIS H. FALES, Stevensville.

The following order has been revoked: *To Camp Dix,* Wrightstown, N. J., base hospital, Lieut. THOMAS B. SCOTT, Butte.

Nebraska

To Camp Beauregard, Alexandria, La., base hospital, Capt. WASHINGTON I. DEVERS, Upland. For duty, from Fort Riley, Lieut. HENRY B. BOYDEN, Grand Rapids.

To Camp Cody, Deming, N. M., base hospital, Lieut. LEO J. KILLIAN, Blair. To examine the command for nervous and mental diseases from Camp Bowie, Capt. HARRY R. CARSON, Norfolk.

To Camp Grant, Rockford, Ill., base hospital, for observation and treatment, Lieut. J. IRWIN LIMBURG, Walthill.

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Greene, Capt. JUDD A. STRONG, Kearney.

To Fort Oglethorpe for duty, from Fort Riley, Majors ELMER S. TENNEY, Lincoln; HAROLD E. EGGERS, C [illegible] Capts. ROYAL WOODS, Haigler; ROY P [illegible] Lieuts. FRANK W. PLEHN, Scottsbluff; POI [illegible] bago; from Fort Sill, Capt. ELMER R. PORTER, Omaha.

To Fort Riley for instruction, Capts. CLAUDE B. CALBREATH, Hastings; ERSKINE M. BARNES, Omaha; FREDERICK H. KUEGLE, West Point; Lieuts. FREDERICK G. KOLOUGH, Schuyler.

The following orders have been revoked: *To Camp Custer,* Battle Creek, Mich., for duty, Capt. GEORGE H. BRASH, Beatrice. To report by wire to the commanding general, Central Department, for duty, Lieut. JOSEPH H. BOYES, Hebron.

Nevada

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. JOHN R. MASTERSON, Tonopah.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Bowie, Lieut. JOHN C. KITCHEN, Mina.

To Camp Kearney, Linda Vista, Calif., base hospital, Capt. EUGENE K. SMITH, Lovelock.

New Hampshire

To Camp Devens, Ayer, Mass., for duty, from Vancouver, Capt. CHARLES A. STURTEVANT, Manchester.

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Jackson, Lieut. PHILIAS A. PION, Concord; from Camp Lee, Lieut. JOHN C. ECKHARDT, Sanbornville.

To Fort Oglethorpe base hospital, from Fort Logan H. Roots, Lieut. GEORGE F. DWINELL, Manchester. For instruction, Capts. HIRAM L. JOHNSON, Franconia; CHARLES F. NUTTER, Nashua; Lieut. ANTHONY D. VANVAS, Manchester.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. ROLAND J. BENNETT, Dover.

To San Francisco, Calif., Letterman General Hospital, for duty, Major SAMUEL ROBINSON, Walpole.

Honorably discharged, Capt. ARSENE LAVALLET, Berlin.

The following order has been revoked: *To Camp Jackson,* Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. NOEL E. GUILLET, Manchester.

New Jersey

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Lee, Lieut. DAVID BERNER, Atlantic City.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. HARRY G. THIGPEN, Atlantic City.

To Camp Sheridan, Montgomery, Ala., to examine the troops for tuberculosis, from Camp Joseph E. Johnston, Lieut. SAMUEL BARIMAN, Jersey City.

To Camp Upton, L. I., N. Y., base hospital, Capt. HOWARD S. FORMAN, Jersey City.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dix, Lieut. SIDNEY C. LEVINE, Paterson.

To Fort Benjamin Harrison, base hospital, from Army Medical School, Lieut. EDMUND W. ILL, Newark.

To Fort McHenry, Md., base hospital, from Camp Dix, Lieut. GEORGE P. MEYER, Camden.

To Fort Oglethorpe, base hospital, from Camp Dix, Major J. SCHLICHTER, Elizabeth; from Fort Riley, Capt. JEREMIAH B. WINTERSTEEN, Morristown. For instruction, Capts. CHARLES L. BOSSERT, Atlantic City; PERRY B. PRESTON, Newark; ROBERT R. ARMSTRONG, Passaic; NORMAN W. CURRIE, Plainfield; Lieuts. BENJAMIN BOROW, Camden; RICHARD B. ERNEST, Jr., Salem; from Camp Hancock, Capt. JOHN A. FREESE, East Orange.

To Garden City, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. ABRAHAM OCKENE, West Hoboken.

To Hoboken, N. J., for duty, Lieut. CHARLES F. RATHGEBER, East Orange; from Camp Crane, Capt. HAROLD G. WALKER, Wyckoff.

To New York City, Bellevue Hospital, for instruction, and *on completion to Camp Devens,* Ayer, Mass., base hospital, Lieut. FRANK L. MARTINE, Newark.

To Richmond, Va., for duty, Lieut. JAMES P. SCHUREMAN, New Brunswick.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. GIOVANNI FASANO, Newark. On completion *to his proper station,* from Camp Custer, Lieut. ABRAHAM J. NEWMAN, Jersey. For instruction in the treatment of infected wounds, and on completion *to Camp McClellan,* Anniston, Ala., base hospital, Lieut. DAVID P. BROWN, Bordentown.

New Mexico

To Camp Cody, Deming, N. M., base hospital, Lieut. WILLIAM C. WEBER, La Plata.

To Camp McClellan, Anniston, Ala., for duty, from Fort Riley, Lieut. WILLIAM C. MATTHEWS, Roswell.

To Camp Sheridan, Montgomery, Ala., as *assistant* to the division surgeon, from Fort Riley, Lieut. GEORGE W. SAMMONS, Farmington.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. LEWIS B. ROBINSON, Pinos Altos.

To Del Rio, Texas, camp hospital, Capt. SYLVESTER G. VON ALMEN, Roswell.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. WILLIAM M. SHERIDAN, Albuquerque.

New York

To Camp Beauregard, Alexandria, La., base hospital, Capt. MICHAEL OSATE, New York. For duty, from Fort L. H. Roots, Capt. WILLIAM C. CAUBLE, Brooklyn.

To Camp Devens, Ayer, Mass., base hospital, from Camp Meade, Lieut. ETHELBERT A. CALLAGHAN, Brooklyn. For duty, from Camp Dodge, Lieut. DAVID R. MELEN, Rochester; from Camp Upton, Capt. EDWARD J. RILEY, Lieuts. SAMUEL K. LEVY, TOM LOWRY, SAMUEL STRUMWASSER, New York. With the board examining the command for nervous and mental diseases, Lieut. WILLIAM C. SANDY, Shaldrake Springs.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. WILLIAM F. McTAGUE, New York. For duty, from Fort Oglethorpe, Lieuts. FRANCIS M. KUJAWA, Buffalo; SIMON MENCHER, New York.

To Americus, Ga., Signal Corps Aviation School, as flight surgeon, from Mineola, Lieut. WILLIAM B. WHITE, New York.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. JOHN W. WURTHMANN, New York City. To examine the command for nervous and mental diseases, Capt. GORDON PRIESTMAN, Willard.

To Camp Jackson, Columbia, S. C., base hospital, Capt. ERNEST N. WILCOX, Pleasantville; from Camp Pike, Lieut. EPHRAIM M. BLUESTONE, New York.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Jackson, Lieut. HORACE E. ROBINSON, Pleasantville.

To Camp Lee, Petersburg, Va., base hospital, from Baltimore, Lieut. FREDERIC D. ZEMAN, New York; from Camp Dix, Capt. ROYALE H. FOWLER, Brooklyn; HARRY P. MENCHEN, Long Island; from Camp McClellan, Lieut. FRED W. EASTMAN, New York; from Camp Shelby, Capt. ROBERT H. FOWLER, New York; from Fort Riley, Major BERNARD S. OPPENHEIMER, New York. For duty, Capt. ABRAHAM L. CARDOZO, Brooklyn; Lieut. CLAYTON M. AXTELL, Deposit.

To Camp Meade, Admiral, Md., base hospital, Capt. ROLAND G. HOLT, Schenectady; from Camp Shelby, Capt. ABRAHAM ZINGHER, New York. With the board examining the troops for cardiovascular diseases, Capt. THEODORE B. BARRINGER, New York.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. WILLIAM W. DICKEY, New York. With the board examining the command for nervous and mental diseases. Lieut. GEORGE R. STALTER, Troy.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp Sherman, Lieut. HOWELL E. BABCOCK, Brooklyn.

To Camp Upton, L. I., N. Y., base hospital, Capt. GEORGE W. ANGLIN, Rochester; Lieut. SOLOMON HIRSCH, New York; JEREMIAH J. MORIN, Rochester; from Hoboken, Major DAVID BOVAIRD, New York. For duty, Lieut. JOSEPH J. McNAMARA, Waverly. With the board examining the command for nervous and mental diseases, Lieut. WALTER A. SCHMITZ, Middletown.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Walter Reed General Hospital, Capt. JAMES P. FISKE, New York.

To Canal Zone for duty, from Camp Sevier, Lieut. LEO EDELMAN, New York.

To Columbus Barracks, Ohio, for temporary duty, Lieut. ROLLIN VAN H. HADLEY, Collins.

To Fort Des Moines, Iowa, base hospital, from Fort Riley, Major MARTIN B. TINKER, Ithaca.

To Fort McHenry, Md., base hospital, from Camp Dix, Capt. HENRY W. JACKSON, New York.

To Fort Jay, N. Y., for duty, Capt. AMOS T. BAKER, Elmhurst.

To Fort Oglethorpe, as instructor, from Fort Riley, Capt. FREDERICK H. SPENCER, Waverly; Lieut. GEORGE J. CULVER, Au Sable Forks. *To base hospital*, from Rockefeller Institute, Lieut. ALBERT J. SCHOLL, Jr., New York. For duty, Lieut. MORTON E. BROWNELL, Oneonta; from Fort Riley, Major NATHANIEL P. BREED, Douglaston. For instruction, Capts. ROBERT T. BRIGGS, Brooklyn; JACOB H. DEWEES, Buffalo; JAMES M. HACKETT, Champlain; JAMES B. CROMLEY, JACOB C. FISK, JAMES J. S. WALSH, New York; GEORGE H. PEDDLE, Perry; JOSEPH B. KNIPE, Sparkhill; ALEXANDER F. WRIGHT, Wayne; Lieut. ROBERT M. ANDREWS, Bergen; NATHANIEL S. CARLIN, WALTER J. O'CONNELL, Brooklyn; HOBART S. VAN NOSTRAND, Little Neck; FRANK BRANCATO, HARRY KATZ, ELIAS RAPOPORT, EARL E. VANDERWERKER, ROSCOE S. VAN PELT, New York; SIDNEY C. VERMILYEA, Poughkeepsie; DAVID H. ATWATER, Rochester; WILLARD E. WHEELOCK, Rockville Center; ARNOLD B. KAUFFMAN, Syracuse; from Akron, Ohio, Lieut. CHARLES GOTTLIEB, New York; from Biltmore, Lieut. ARCHIE E. GORDIN, New York; from Fort Sill, Lieut. THOMAS F. BERBEROVICH, New York.

To Garden City, L. I., N. Y., for duty, Lieut. RAYMOND D. HENDERSON, New Brighton; from Fort Oglethorpe, Lieut. ROBERT BAILIN, Brooklyn; from San Antonio, Lieut. SAMUEL ROTH, New York.

To Hoboken, N. J., base hospital, from Army Medical School, Capt. EUGENE F. CONNALLY, Troy; from Lakewood, Lieut. GUSTAVE A. BRAUN, Brooklyn. For duty, from Williamsbridge, Major MENUS S. GREGORY, New York.

To Lakewood, N. J., for duty, Capt. FREDERICK M. ALLEN, New York.

To Richmond, Va., for duty, from Camp Greene, Capt. GORDON T. GRAHAM, Rochester.

To Rockefeller Institute for instruction, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. ALBERT W. BECK, Brooklyn. On completion *to Camp Upton, L. I., N. Y.*, base hospital, Lieut. DANIEL J. DALY, New York. For instruction in bacteriology, and on completion *to Army Medical School*, for duty, Lieuts. GEORGE G. DAVIS, Arcade; MURRAY L. BRANDT, Bronx; JAMES L. MANGANO, HAROLD A. PATTERSON, Buffalo; RONALD M. FERRY, New York. For instruction in the treatment of infected wounds, and on completion *to Camp Lee*, Petersburg, Va., base hospital, Lieut. J. LOUIS PRESTON, Canisteo. On completion *to Camp Shelby*, Hattiesburg, Miss., base hospital, Capt. FLOYD PALMER, Glen Falls. On completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Capt. WILLIAM R. THOMSON, Warsaw.

To San Antonio, Texas, United States Army School, as flight surgeon, from duty as a contract surgeon, Capt. DAVID H. WEBSTER, New York.

To Walter Reed General Hospital, Takoma Park, D. C., for temporory duty, Major HENRY C. HADEN, Saratoga Springs; from Camp Jackson, Lieut. FRANK G. WALZ, Buffalo.

Honorably discharged, Major JOHN P. FABER, Schenectady. On account of physical disabiilty existing prior to entrance into the service, Lieut. FLOYD H. MOORE, Herkimer.

The following order has been revoked: *To Camp Jackson*, Columbia, S. C., base hospital, Lieut. EDWARD L. FROST, Buffalo.

North Carolina

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. ARTHUR E. GOUGE, Bakersville; HOWLAND McN. LANCASTER, Dolson.

To Camp Lee, Petersburg, Va., for duty, Lieut. ALBERT G. HORTON, Zebulon.

To Camp Meade, Admiral, Md., with the board examining the command for tuberculosis, from Camp Gordon, Capt. THOMPSON FRAZER, Asheville.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. NORMAN G. WILLIAMS, Franklin.

To Fort Oglethorpe for instruction, Capts. MICHAEL J. COSTELLO, Asheville; McLAIN ROGERS, Clyde; CLAUDE O. ABERNETHY, Raleigh; Lieuts. ARTHUR G. BOYER, Asheville; CHARLES F. STROSNIDER, Goldsboro; KEMP P. NEAL, Monroe; from Camp Mills, Lieut. JOHN B. LEGWIN, Wilmington.

To Raleigh, N. C., State Board of Health, as epidemiologist, from Fort Sam Houston, Major CHARLES O'H. LAUGHINGHOUSE, Greenville.

The following order has been revoked: *To Army Medical School* for instruction, Lieut. FRANK H. GARRISS, Lewiston.

North Dakota

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. ALBERT M. FISHER, Bismarck.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. JAMES E. CRAMMOND, Rugby.

To Fort Oglethorpe, for instruction, Lieut. LAWRENCE F. FISHER, Dickinson; from Fort Riley, Lieut. ARTHUR PEAKE, Grand Forks.

Ohio

To Fort Sam Houston, Texas, for duty, from Camp Travis, Major FRANK E. BUNTS, Cleveland.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Mineola, Lieut. WILLIAM W. SAUER, Marietta. *To Mineola, L. I., N. Y.*, Hazelhurst Field, for duty, from Camp Hancock, Capt. PERCY W. COBB, Cleveland.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. LARRY R. GALE, Newport.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. WALTER CARY, Toledo.

To Camp Cody, Deming, N. M., for temporary duty, from Army Medical School, Major ALLEN W. FREEMAN, Columbus.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. ALVA E. SNYDER, Bryan.

To Camp Devens, Ayer, Mass., as sanitary inspector, from Camp Abraham Eustis, Capt. JAMES M. DAY, Waynesfield.

To Camp Dix, Wrightstown, N. J., for duty, Capt. ARTHUR L. JONES, Lima; Lieuts. HAROLD FEIL, Cleveland; ANDREW B. WILKIE, Oxford.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. EDGAR T. KNOOP, Cincinnati.

To Camp Grant, Rockford, Ill., base hospital, Capt. LAWRENCE C. GROSH, Toledo.

To Camp Upton, L. I., N. Y., base hospital, Capt. CHARLES F. TENNEY, Toledo; Lieut. JESSE B. SAMPSELL, Van Wert. For duty, Lieuts. ALVIN E. DRACK, Cleveland; JAMES S. COUDEN, Morrow.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dodge, Lieut. BRYCE A. MILLER, Amherst. For duty, from Fort Oglethorpe, Lieut. GEORGE O. HOSKINS, Columbus.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. FRANK S. GIBSON, Cleveland.

To Fort Oglethorpe for duty, Major SIMON P. KRAMER, Cincinnati; from Fort Riley, Capts. ROY A. BRINTNALL, Seville. For instruction, Capts. HERMAN R. DEWEY, Bellevue; LOUIS M. CUSHER, FRANK U. SWING, Cincinnati; FRANK MORRIS, Columbus Grove; JAMES R. TILLOTSON, Delphos; GEORGE W. BURNER, Dennison; RALPH W. REED, Middletown; Lieuts. CLAUDE A. LINGENFELTER. Bucyrus; SAMUEL J. FEINGOLD, Canton; DENNIS RUPP, Cincinnati; WILLIAM H. MILLER, DAVID P. PHILLIPS, Jr., Columbus; HUGH S. JAMES, McArthur; ELROY L. HOOPER, Memphis; ERWIN H. HAYMAN, Murray City; JOHN A. SIPHER, Norwalk; FRED W. DIXON, Petersburg; GILBERT R. MICKLETWAITE, Portsmouth; HOMER M. YODER, Smithvile; JAMES H. POULTON, Springfield; WALTER A. NOBLE, St. Mary's; JOHN F. HAMSHER, St. Paris; CHARLES R. KING, Toledo; HOMER H. WILLIAMS, Uhrichsville; ULRIC Z. JUNKERMANN, Westerville.

To Fort Riley for duty, from Fort Oglethorpe, Lieut. FRANK P. GERACI, Cleveland.

To Garden City, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. FRED E. HALL, Springfield.

To Metuchen, N. J., for duty, from Fort Oglethorpe, Lieut. JOHN E. TALBOTT, Alger.

To New Haven, Conn., for duty, Lieut. WILLIAM F. BAY, Columbus. *To Yale Army Laboratory*, for instruction in bacteriology, Lieut. JACOB D. LOWER, Coshocton. *To Yale Laboratory School*, for instruction in bacteriology, Lieut. ALLEN J. FOX, Cincinnati.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, Lieut. LEO E. COURTRIGHT, Dayton.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, Lieut. SAMUEL H. MILLER, Columbus. For instruction in the treatment of infected wounds, and on completion *to Camp Sheridan*, Montgomery, Ala., base hospital, Capt. RAYMOND W. RUNYAN. Lieut. THEODORE W. WENNING, Cincinnati. On completion *to Camp Wadsworth*, Spartanburg, S. C., base hospital, Capt. JAMES W. ROWE, Cincinnati.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. DAVID R. KLINE, Cleveland; JOHN H. RAMEY, Rock Camp.

The following order has been revoked: *To Camp Meade*, Admiral, Md., for duty, Lieut. DANIEL W. JONES, Columbus.

MEDICAL MOBILIZATION

Oklahoma

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Capt. CHARLES W. HEITZMAN, Muskogee; Lieuts. LESLIE D. CONN, Cowlington; ROBERT E. CALHOUN, Hallett.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieuts. ALFRED H. BUNGARDT, Cordell; CHARLES E. CALHOUN, Sand Springs; CHARLES E. DAVIS, Woodward.

To Camp Cody, Deming, N. M., base hospital, Lieuts. ROBERT LeR. BROWNING, Haileyvile; EDWARD R. ASKEW, Hugo.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. HENRY S. DRUMMOND, Haileyville.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. ARTHUR E. HALE, Alva; CARL L. McCALLUM, Sapulpa.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. WILLIAM B. CATTE, El Reno; from Fort Sill, Capt. JOSEPH T. EDWARD, Lawton.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Doniphan, Lieut. VICTOR C. TISDAL, Elk City.

To Camp Logan, Houston, Tex., base hospital, Capt. JAMES H. MAXWELL, Oklahoma City.

To Camp MacArthur, Waco, Texas, base hospital, Capt. GEORGE H. WETZEL, Sapulpa. For duty, Lieuts. PAUL H. CHRISTIAN, Oklahoma City; OSCAR C. NEWMAN, JAMES W. ROLLO, Shattuck.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. JULIUS W. NIEWEG, Duncan.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. ANDREW W. HARRIS, Muskogee.

To Camp Upton, L. I., N. Y., for duty, from Fort Riley, Lieut. SAMUEL N. STONE, Edmond.

To Fort Oglethorpe for instruction, Capts. GEORGE A. KILPATRICK, McAlester; JAMES S. McALLISTER, Sapulpa; Lieuts. RICHARD F. KING, Ada; JERRY ASHLEY, Fletcher; EDWIN DAVIS, Haskell.

To Fort Riley for duty, from Fort Oglethorpe, Lieut. VICTOR M. GORE, Taloga. For instruction, Capts. CHARLES A. WALTERS, Nowata; GILES E. HARRIS, Hugo; Lieuts. CHARLES A. BRAKE, Ceary; LEONADUS H. McCONNELL, Elmer; THEODORE T. SHACKELFORD, Haskell; RUSSELL J. SHULL, Hugo; ERNEST R. CAVETT, Kiel; ERNEST H. LAIN, Paoli; PAUL G. EILERS, Quinlan; FRANK L. HUGHSON, Vinita. With the board examining the command for nervous and mental diseases, Capt. ERNEST L. BAGBY, Fairfax.

Oregon

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. ARTHUR J. FAWCETT, Riddle.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Lewis, Lieut. CHARLES R. McCOLL, Portland.

To Camp Lewis, American Lake, Wash., base hospital, Capt. WILSON JOHNSTON, Portland.

To Fort Oglethorpe for instruction, Lieut. CHARLES C. POTHERAM, Portland.

To Fort Riley for instruction, Lieut. ARCHIBALD D. MORRISON, Carlton.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. FRANK J. BROWN, Yale.

Pennsylvania

The following orders have been revoked: *To Camp Abraham Eustis*, Lee Hall, Va., for duty, Lieut. ORAM R. KLINE, Philadelphia. *To Camp Wheeler*, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. GUY E. DUTTER, Philadelphia. *To Camp Sevier*, Greenville, S. C., for duty, from Camp Custer, Major THOMAS W. JACKSON, Philadelphia. *To Fort McPherson, Ga.*, for temporary duty, Lieut. PERRY McD. TIBBINS, Beech Creek. *To Fort Oglethorpe* as assistant instructor, from Philadelphia, Capt. WALTER E. LEE, Philadelphia. *To New York City*, Neurological Institute, for intensive training, Lieut. ABRAHAM M. ORNSTEEN, Philadelphia. *To Plattsburg Barracks, N. Y.*, for duty, from Fort McPherson, Capt. HARRY C. WESTERVELT, Pittsburgh.

To Army Medical School, for instructions, Capt. WILLIAM F. ROSS, Aspinwall.

To Camp A. A. Humphreys, Accotink, Va., base hospital, from Army Medical School, Lieut. STANLEY P. REIMANN, Philadelphia.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. JOHN W. HORN, Hellam; Lieut. ORAM R. KLINE, Philadelphia; from Fort Oglethorpe, Lieut. JULIUS A. BLASSER, Philadelphia.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. CLARENCE A. PAULUS, Telford.

To Camp Crane, Allentown, Pa., base hospital, from Camp Dix, Capt. PERCY DeLONG, Philadelphia.

To Camp Grant, Rockford, Ill., for duty, Capt. HORACE L. W. WIGNALL, Pittsburgh; Lieut. WILLIAM C. BEHEN, Philadelphia.

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Logan, Lieut. JAMES G. MURFIN, Philadelphia.

To Camp Lee, Petersburg, Va., for duty, Capt. JAMES R. BIBIGHAUS, Glenside; Lieut. ARTHUR E. WHITTAKER, Zelienople; from Fort Oglethorpe, Lieut. WILLIAM E. SEIBERT, Lancaster; ALFRED R. SERAPHIN, Philadelphia.

To Camp Logan, Houston, Texas, base hospital, from Rockefeller Institute, Lieut. THEODORE MELNICK, Philadelphia.

To Camp Meade, Admiral, Md., for duty, Major THOMAS W. JACKSON, Philadelphia; from Camp Dodge, Lieut. LOUIS SEGAL, Philadelphia.

To Camp Raritan, Metucheon, N. J., for duty, from Camp Dix, Capt. I. WARNER KNIGHT, Philadelphia.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. WALTER M. BLACK, St. Mary's; from Camp MacArthur, Lieut. OTTO C. HIRSCH, Philadelphia.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. PAUL H. GERHARDT, Reading; from Fort McPherson, Capt. SAMUEL D. INGHAM, Philadelphia.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Major EDWARD J. G. BEARDSLEY, Philadelphia; Lieut. WALTER S. LUCAS, Wynnewood.

To Fort Oglethorpe, base hospital from Camp Pike, Lieut. EDWIN H. ERNEY, Philadelphia. For instruction, Capts. RICHARD R. PAXSON, Hulmeville; JOSEPH C. BOGGS, WARDEN A. CLARK, ALBERT R. MATHENY, MILES E. STOVER, Pittsburgh; JOHN B. McMURRAY, Washington; HARRY S. LAKE, Willock; WALTER R. SHOEMAKER, Wilmerding; Lieuts. JAMES P. ROTH, Ashland; LEWIS C. DRUFFNER, Avoca; MARSDEN D. CAMPBELL, Belleville; CALIXTO RODRIGUEZ, Easton; IRA De McCOY, Emlenton; ALBERT N. REDELIN, Freeland; EDGAR J. STEIN, Lancaster; GEORGE R. PRETZ, Lebanon; GEORGE A. MAYER, Marksville; PAUL L. BRUNER, Oil City; EDWIN P. KITCHEN, JAMES A. MALONEY, MICHAEL PLATT, JOSEPH D. SEIBERLING, MORRIS S. SHAPIRO, BERNARD P. WIDMANN, Philadelphia; HARRY P. SMITH, Pittsburgh; LINFORD R. ROBERTS, Quakertown; WARREN S. REESE, Scranton; FRANK R. HUMPHREYS, West Philadelphia; AMADA R. CORE, Whitley; ARTHUR H. GASTON, York.

To Hoboken, N. J., base hospital, from Camp Meade, Lieut. CAREY C. BRADIN, Tyrone. For duty, Lieut. GEORGE W. MUFFLY, Turbotville.

To Metuchen, N. J., for duty, from Fort Oglethorpe, Lieut. ROBERT O. KOONS, Conyngham.

To Rockefeller Institute for instruction, and on ccompletion *to Camp Devens*, Ayer, Mass., base hospital, Capt. JOHN S. MACKRELL, Lieut. SAMUEL J. GLASS, Jr., Pittsburgh. And on completion *to Camp Upton, L. I., N. Y.*, base hospital, Capt. CHARLES K. FERER, Meadville. For instruction in bacteriology. from Camp Meade, Lieut. JOHN R. CONOVER, Philadelphia. On completion *to Army Medical School*, for duty, Lieuts. RAY De PAO, Bearden; JAMES McL. FLEMING, Blairs Mills. For instruction in the treatment of infected wounds, and on completion *to Camp Hancock*, Augusta, Ga., base hospital, Capt. JOEL S. KELSEY, Pittsburgh. On completion *to New York*, Bellevue Hospital, for further instruction, and on completion *to Camp Cody*, Deming, N. M., base hospital, Capt. SAMUEL A. BULON, Jr., Phoenixville.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. HILTON A. WICK, Philadelphia.

To Williamsbridge, N. Y., for temporary duty, Lieut. KIM D. CURTIS, Claghorn.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. JOHN H. BENNETT, York.

Resignation of Capt. HARRY M. ALLEN, Reading, accepted.

Philippine Islands

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JAMES L. BOOTH, Manila.

Porto Rico

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. ALFRED C. SMITH, Henry Barracks.

To Camp Las Casas, San Juan, P. R., base hospital, Lieut. HONORIO F. CARRASQUILLO, Crales. For duty, Lieuts. JAMES W. BRICE, Humacao; JOSE R. MARQUES, Patillas; JOHN E. STEVENS, San Juan.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Joseph E. Johnston, Major EMMETT I. VAUGHN, Central Aguirre.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School*, for duty, Lieut. LUIS A. SALIVA, Rio Piedras.

The following order has been revoked: *To Camp Abraham Eustis*, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. MARIANO B. CABALLERA, Humacao.

Rhode Island

To Camp Devens, Ayer, Mass., base hospital, Capt. JOHN CHAMPLIN, Westerly.

To Camp Dix, Wrightstown, N. J., base hospital, from New York, Capt. JOHN N. FERGUSON, Providence.

To Camp Hancock, Augusta, Ga., base hospital, from Army Medical School, Lieut. JOHN F. KENNEY, Pawtucket.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. WILLIAM McDONALD, Providence.

To Fort Oglethorpe for instruction, Capt. ARTHUR B. BRADSHAW, Providence.

South Carolina

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. ARCHIE E. BROWN, Greenville.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. WILLIAM B. BAKER, Hemingway.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. THOMAS R. LITTLEJOHN, Sumter.

To Fort McHenry, Md., base hospital, Lieut. LOUIS A. BUIE, Georgetown.

To Fort Oglethorpe for instruction, Capts. GEORGE W. POOVEY, Lancaster; ARTHUR P. McELROY, Union; Lieuts WILLIAM L. PRESSLY, Due West; ENOCH M. DIBBLE, Marion; FURMAN T. SIMPSON, Westminster.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Charleston, S. C., Lieut. CLAUDIUS F. BULLOCK, Nicholes.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for instruction, from Charleston, S. C., Capt. CHARLES W. KOLLOCK, Charleston.

South Dakota

To Camp Dodge, Des Moines, Iowa, base hospital, Capts. JESSIE D. WHITSIDE, Aberdeen; EUGENE M. STANSBURG, Vermilion; Lieuts. REZIN REAGAN, Garretson; ROY G. STEVENS, Sioux Falls. To examine the command for nervous and mental diseases, Lieut. MARTIN L. STIFFLER, Yankton.

To Camp Fremont, Palo, Alto, Calif., for duty, Lieut. CLEVE R. SENESCALL, Veblan.

To Camp Grant, Rockford, Ill., base hospital, Capt. JOHN F. ADAM, Aberdeen; Lieuts. BUELL H. SPRAGUE, Huron; STEPHEN A. DONAHOE, GUY E. VAN DEMARK, Sioux Falls; from Fort Sill, Capt. THOMAS W. MOFFITT, Deadwood.

To Camp MacArthur, Waco, Texas, for duty, from Fort Riley, Capt. FLOYD S. KIDD, Woonsocket.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. ROBERT M. MALSTER, Carter.

To Fort Oglethorpe for duty, from Fort Riley, Lieut. DENNIS W. SULLIVAN, Britton. For instruction, Capts. WELLINGTON J. MAYTUM, Alexandria; WILLIAM F. KELLER, Lieut. FRANK I. PUTMAN, Sioux Falls.

Tennessee

To Camp A. A. Humphreys, Accotink, Va., for duty, Lieut. STANTON H. BARRETT, Chattanooga.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieuts. FORREST S. LETELLIER, Knoxville; JOSEPH H. LITTERER, Nashville.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JOHN H. McSWAIN, Paris.

To Camp Gordon, Atlanta, Ga., base hospital, Major GEORGE M. ELLIS, Chattanooga.

To Camp Lee, Petersburg, Va., for duty, Capt. DION A. GREER, Pikesville.

To Fort Benjamin Harrison, base hospital, Lieut. HENRY C. LONG, Chattanooga.

To Fort Des Moines, Iowa, base hospital, from Camp Dodge, Lieut. ELMER S. MAXWELL, Nashville.

To Fort Oglethorpe, base hospital, Lieut. JOHN A. McINTOSH, Memphis. For instruction, Capts. JESSE F. ADAMS, Bradyville; FRANCES H. BOMAR, Knoxville; ROBERT L. JONES, ALPHEUS L. SHARBER, Nashville; Lieuts. PHARES W. CALLIHAN, Memphis; FOUNTAIN B. HULME, Nashville.

To Hoboken, N. J., base hospital, from Buffalo, Lieut. ROBERT C. DAVIS, Knoxville; from Camp Dix, Lieut. ELLIS L. WILKINS, Dyersburg; from Fort Oglethorpe, Lieut. WILLIAM E. TROXLER, Lewisburg.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon,* Atlanta, Ga., base hospital, Lieut. RALEIGH R. DAVENPORT, Memphis. On completion *to Camp Meade, Admiral, Md.,* base hospital, Lieut. HORACE E. THOMAS, Memphis.

To Rockefeller Institute for instruction, and on completion *to Camp Gordon,* Atlanta, Ga., base hospital, Capt. JOHN A. PRICE, Jasper.

Texas

To Camp Alfred Vail, Little Silver, N. J., for temporary duty, from Camp Devens, Lieut. DOLPHUS E. COMPERE, Dallas.

To Camp Cody, Deming, N. M., base hospital, Lieut. FRANK D. MABRY, Port Arthur.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. JOHN W. BALKE, Rosenberg.

To Camp Grant, Rockford, Ill., base hospital, from Fort Sill, Lieut. BENJAMIN F. SMITH, JR., Galveston. For duty from Fort Riley, Lieut. REUBEN W. JACKSON, Dallas; ELISHA H. ROBERTS, Marshall.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Sam Houston, Lieut. RICHARD C. CURTIS, Temple.

To Camp John Wise, San Antonio, Texas, for duty, from South San Antonio, Lieuts. JAMES W. SHADDIX, Marietta; ARTEMUS H. MARTINDALE, Teneba.

To Camp Lee, Petersburg, Va., for duty, from Camp Beauregard, Lieut. JOHN J. GILL, Lamarco.

To Detroit, Mich., for duty, from San Antonio, Capt. WALTER R. RUSSELL, Ben Hur.

To Fort Des Moines, Iowa, base hospital, Lieut. HENRY G. NEWSOM, Dallas.

To Fort Oglethorpe, base hospital, from Camp MacArthur, Capt. WILLIAM L. CROTHWAIT, Waco. For duty, from Fort Riley, Major CARL LOVELACE, Waco. For instruction, Capts. MANTON M. CARRICK, Dallas; EDWARD G. CLAVIN, San Antonio; Lieut. JIM CAMP, Pecos; from Fort Riley, Capt. WILLIAM H. MORROW, Dunn; from Fort Sill, Capt. LUKE P. ALLISON, Brownwood; from Washington, Lieut. JOHN W. GOODE, San Antonio.

To Fort Riley for instruction, Capts. WESTON W. NIPPER, Brackettville; CHARLES P. BROWN, El Paso; ROBERT D. HARRIS, Fulshear; GEORGE D. CRIMES, RAYMOND DAWES, Houston; Lieuts. ROBERT L. LONG, Atlanta; EDWARD H. SNYDER, Canadian; JOHN A. MONK, Kempner; LEWIS B. BIBB, Paris; RANDALL E. CROMEANS, Strawn; JAMES K. SMITH, Texarkana; WALTER W. ANDERSON, Village Mills.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. ELISHA H. ROBERTS, Marshall.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. JOHN W. HARPER, Paducah.

To Richmond, Va., for duty, from Camp Greene, Lieut. WILMER A. HADLEY, Friendswood.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. ALLEN H. NEIGHBORS, Sequin.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. BRUNS P. HOLLAND, Beaumont.

The following order has been revoked: *To report by wire to the commanding general,* Southern Department, for assignment to duty, Lieut. FRED H. HODDE, Benton.

Utah

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. ARHTUR D. KNOTT, Murray.

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. GARLAND H. PACE, Murray.

To Camp Grant, Rockford, Ill., base hospital, from Philadelphia, Lieut. DAVID K. ALLEN, Salt Lake City. For duty, from Fort Riley, Lieut. HARRY S. SCOTT, Salt Lake City.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Riley, Lieut. FRANK K. BARTLETT, Ogden.

To Fort Oglethorpe for duty, from Fort Riley, Capt. FREDERICK G. CLARK, Ogden.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. BERT A. DANNENBERG, Hober.

Vermont

To Camp Dix, Wrightstown, N. J., for duty, Lieut. BARNET FRANK, Burlington.

To Fort Oglethorpe for instruction, Capt. STODDARD S. MARTIN, Windsor; Lieuts. BYRON E. WHITE, Brattleboro; JOHN A. HUNTER, MARTIN J. PAULSEN, Burlington.

To Fort Worth, Texas, Signal Corps Aviation School, for duty, from San Antonio, Capt. ARTHUR L. LARNER, Burlington.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Capt. HENRY L. CRAGAN, Rutland.

To Rockefeller Institute for instruction, and on completion *to Camp Lee,* Petersburg, Va., base hospital, Capt. WILLIAM E. LAZELL, Barre.

Virginia

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Camp Lee, Major PHILANDER C. RILEY, Markham.

To Camp Greene, Charlotte, N. C., base hospital, Capt. GEORGE P. HAMNER, Lynchburg.

To Camp Las Casas, San Juan, P. R., for duty, from Camp Lee, Lieut. CARROLL E. FOLEY, Lovettsville.

To Camp Lee, Petersburg, Va., base hospital, Lieut. JAMES R. GORMAN, Lynchburg.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Zachary Taylor, Lieut. ROBERT J. EVANS, JR., Hopewell.

To Fort Oglethorpe for instruction, Lieuts. BURL BASSETTE, Hampton; TURNER S. SHELTON, Richmond; RICHARD E. PARKER, Suffolk.

To Fort Ontario, N. Y., base hospital, from Fort Riley, Lieut. CLIFFORD A. FOLKES, Roanoke.

To Morrison, Va., for duty, from Fort Oglethorpe, Lieuts. JOHN S. GILMAN, Richmond; WILLIAM T. GAY, Suffolk.

To New Haven, Conn., Yale Army Laboratory School, for duty, from Army Medical School, Lieut. CORNELIUS B. COURTNEY, Richmond.

To Newport News, Va., base hospital, from New York, Lieut. JOSEPH T. McKINNEY, Richmond.

To Rockefeller Institute for instruction in bacteriology and on completion *to Army Medical School* for duty, Lieut. JAMES O. FITZGERALD, Richmond.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. EDWIN M. CORNS, Richmond.

Washington

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. RALPH F. GOETTER, Colville.

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. CLARENCE E. WILSON, Seattle.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. WILLIAM W. MATTSON, Seattle.

To Camp Leach, American University, Washington, D. C., from Fort Riley, Lieut. LUNSFORD M. THOMPSON, Spokane.

To Camp Lewis, American Lake, Wash., base hospital, Capt. EDGAR L. INGERSOLL, Spokane.

To Camp Meade, Admiral, Md., base hospital, from New York, Capt. WILMOT DE L. READ, Tacoma.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. FRANK C. ROBINSON, Walla Walla.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Capt. WILLARD G. PALMER, Seattle.

To Fort Riley for instruction, Capt. FREDERIC G. ULMAN, Enumclaw.

To Hoboken, N. J., base hospital, from Camp Meade, Lieut. WHITING B. MITCHELL, Sumner; from New York, Lieut. HAROLD B. THOMPSON, Seattle.

West Virginia

To Camp Devens, Ayer, Mass., for duty, from Camp Pike, Lieut. SOLOMON L. CHERRY, Clarksburg.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. CARTER S. FLEMING, Fairmont.

To Camp Lee, Petersburg, Va., for duty, Lieut. CARSON A. WILLIS, Clarksburg.

To Camp Upton, L. I., N. Y., with the board examining the command for nervous and mental diseases, Capt. CHARLES W. HALTERMAN, Clarksburg.

To Fort Oglethorpe for instruction, Capt. TIB N. GOFF, Kenova; Lieuts. ERLAND H. HEDRICK, Beckley; WALTER W. HEALD, Huntington; GROVER C. ROBERTSON, Spencer; from duty as a drafted man, Lieut. JOHN E. CORKREAN, Sand Fork.

To Metucheon, N. J., for duty, from Fort Oglethorpe, Lieuts. ETLEY P. SMITH, Barrackville; CLAUDE M. VAUGHAN, Farmington; JOHN H. HOSKINS, Lillybrook.

To New York City, Neruological Institute, for instruction, from Camp Cody, Major LEWIS C. COVINGTON, Charleston.

To Rockefeller Institute for instruction, and on completion *to Camp Sheridan,* Montgomery, Ala., base hospital, Lieut. EDWARD E. ROSE, Huntington.

Wisconsin

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. CLARK C. POST, Barron, Capt. GEORGE H. DICKINSON, Milwaukee.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. VICTOR DROOCK, Rice Lake.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. WILLIAM H. BAYER, Gleason; FRANCIS J. BROGHAMMER, Superior.

To Camp Grant, Rockford, Ill., base hospital, Lieut. WILLIAM F. GROTJAN, Milwaukee.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Doniphan, Capt. GEORGE E. THOMPSON. Kenosha.

To Camp McClellan, Anniston, Ala., for duty, from Fort Riley, Lieut. FRANK H. KENNEDY, Greenwood.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. FRANK E. ANDRE, Kenosha; from Fort Oglethorpe, Lieut. CHARLES E. STOLZ, Milwaukee. For duty, Lieut. FRANK B. TAYLOR, Madison; from Fort Riley, Lieut. SHERMAN M. KYES, Owen.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Capt. JOHN W. BIRD, Stevens Point.

To Fort McDowell, Calif., for duty, from Fort Leavenworth, Lieut. ALEXANDER J. BERGER, New Holstein.

To Fort Oglethorpe, for duty, from Fort Riley, Capts. HERMAN G. MERTENS, Bayfield; JOHN W. BOREN, Marinette; CLIFFORD J. OUELLETTE, Oconto. For instruction, Lieut. JOHN W. ADAIR, Kenosha; JOHN D. GILLIS, Milwaukee.

To Fort Riley, for instruction, Capt. WILLIAM B. CAMPBELL, Menomonee Falls; Lieut. ALPHONSE J. GEREND, Cato; AVERY L. MYRICK, Eastman; ROBERT L. COWLES, Green Bay; Lieut. EBER E. HAGGERTY, La Forge; ROBERT J. BACH, THEODORE BURBACK, Milwaukee; JOHN H. BASSEN, Mount Calvary; THOMAS G. PARKER, Rome; JOHN J. MINAHAN, St. Nazianz; JOSEPH S. CUTLER, Wawatosa.

To Hoboken, N. J., base hospital, from Camp Sevier, Capt. THOMAS F. SHINNICK, Beloit.

To Montgomery, Ala., for duty, from College Station, Tex., Capt. HUBERT S. STEENBERG, Milwaukee.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. URBAN J. DURNER, Milwaukee; Lieut. OSCAR E. ISMAEL, Mount Horeb.

To Washington, D. C., for temporary duty, from Fort Oglethorpe, Lieut. OTIS W. C. MAERCKLEIN, Wanwatose.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CARL O. HERTZMAN, Ashland.

The following orders have been revoked: *To Camp Dix,* Wrightstown, N. J., base hospital, from Camp Crane, Lieut. CHARLES B. RYDELL, Superior. *To Fort Riley,* for instruction, Lieut. WAYNE A. MUNN, Janesville.

Wyoming

To Camp Beauregard, Alexandria, La., base hospital, Lieut. JOSEPH F. O'DONNELL, Casper.

To Fort Riley for instruction, Capt. JOHN HYNDS, Buffalo.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hopitals, education, public health, etc.)

CALIFORNIA

City Establishes Pathologic Laboratory.—The Municipal Pathological Laboratory of San Barbara opened, July 10.

Personal.—Dr. Alexander S. Kelly, Oakland, was reelected president of the Oakland Board of Education, July 8.——Dr. E. Gilman Goodrich, Los Angeles, has been appointed assistant surgeon at the Los Angeles Receiving Hospital to succeed Dr. Arthur D. Houghton, who resigned to enter the military service.

GEORGIA

Personal.—Dr. Henry R. Donaldson, Atlanta, who has been confined to his home for three months on account of injuries received in an automobile accident, is convalescent, and has resumed practice.

Health Board Appropriations.—The house appropriations committee, July 15, set aside $60,000 for the state board of health for the coming year, or exactly double the amount appropriated for the board in 1916. The board had asked for an appropriation of $70,000.

ILLINOIS

Typhoid in Moline.—Typhoid fever is reported to be epidemic in Moline, where 109 cases have been reported, with one death. Officials of the state board of health have been sent to Moline to determine the cause of the epidemic, investigate the water and milk supplies and the matter of sewage outlets.

Personal.—Dr. Robert C. Bourland, Rockford, formerly major surgeon of the Third Infantry, Ill. N. G., was elected chairman of the west side selective service board, July 18. ——Dr. S. Claude Andrus has been appointed chief surgeon for the Chicago, Milwaukee and Gary Railroad, with headquarters at Rockford.

Chicago

Memorial Institute Changes Name.—The name of the Memorial Institute for Infectious Diseases, founded in memory of John Rockefeller McCormick, has been changed to the John Rockefeller McCormick Institute for Infectious Diseases.

Mandamus Proceedings Instituted.—The Chicago Hospital College of Medicine, whose recognition as an institution in good standing was taken away by action of the Illinois State Board of Health, June 26, 1917, has instituted mandamus proceedings against Francis W. Shepardson, director, and other officers of the department of registration and education, with a view to compelling restoration to good standing. According to the last published report the college is not recognized by thirty-seven states.

INDIANA

New Baby Clinics.—Three additional baby clinics have been established by the Children's Aid Association of Indianapolis, which makes a total of eleven clinics at present in operation in the city.

Personal.—Dr. James E. Luckey, Wolflake, is reported to be in a critical condition as the result of stab wounds inflicted by a farmer living near Wolflake.——In the case of Dr. George F. Smith, Bicknell, charged with securing license to practice medicine in Indiana by fraud, the state medical board dismissed the proceedings.

IOWA

Personal.—Capt. Daniel J. McCarthy, Davenport, has returned after six months' service on the Roumanian front. ——Dr. Maude Hall, Grant, has sailed for Palestine. She expects to make her headquarters at Jerusalem and do Red Cross work with the British Expeditionary Forces.

Warfare on Social Diseases.—Dr. Guilford H. Sumner, Des Moines, secretary of the state board of health, has prepared and is having printed 20,000 copies of a bulletin entitled "Instructions for Preventing the Transmission of Venereal Diseases." Attached to the bulletin is a report form to be filled out by physicians treating cases of venereal disease.

KENTUCKY

Personal.—Dr. Robert V. Ferguson, Trenton, was stricken with cerebral hemorrhage, July 3.——Dr. Claude B. Rankin has resigned as city health officer of Lexington.

Staff at Zachary Taylor Adopts Resolutions on Death of Major Karpas.—The base hospital staff at Camp Zachary Taylor has adopted resolutions of sympathy on the death in France of Major Morris J. Karpas, an announcement of which appeared in The Journal last week. Before leaving for France, Major Karpas was attached to the neuropsychiatric personnel at Camp Taylor.

MAINE

Personal.—Dr. Joseph B. Drummond, Portland, has been nominated as a member of the Public Health Council and also as a member of the state board to regulate the practice of embalming.

Year of College Required.—At its July meeting the Maine Board of Registration in Medicine voted that in 1919 and thereafter all applicants for a license to practice medicine in that state must have completed at least one year of college work in addition to a four-year high school course before having entered on the study of medicine.

MARYLAND

Infantile Paralysis.—There have been sixteen cases of infantile paralysis in Baltimore since the end of April, and eight cases have been reported from the counties outside of Baltimore.

Visitor from Peru.—Col. Gerardo Alarco of Lima, Peru, surgeon in chief of the Peruvian Army, who is making a tour of the United States, visited Johns Hopkins Hospital, Baltimore, July 13.

Meetings.—The thirty-ninth meeting of the Maryland Psychiatric Society was held in conjunction with the Baltimore County Medical Association at the Sheppard and Enoch Pratt Hospital, Towson, July 17. Lieut. Charles C. Rowley, Winnebago, Wis., on duty at Camp Meade, spoke on "The Neuropsychiatrist in the Army."

Campaign to Secure Nurses Opened.—A meeting to mark the official opening of the local United States Student Nurse Campaign by which an effort will be made to secure 510 Maryland women to enroll for courses in hospital training, was held at Osler Hall, Baltimore, July 25. Lieut.-Col. William H. Welch, M. C., N. A., presided; Col. Winford H. Smith, superintendent of the Johns Hopkins Hospital, addressed the meeting, as did also Miss Annie Goodrich, dean of the Army School of Nursing, and Mrs. May Lamberton Becker, chairman of the Foreign News Bureau of Women's Section, National Council of Defense.

Personal.—Dr. Brooks I. Jamison, Emmitsburg, who sustained a fracture of the skull, arm and clavicle in an automobile collision, July 7, and was taken to the Frederick City Hospital for treatment, left the hospital for home, July 11.——Dr. G. Hampton Richards, formerly school physician at the Tome School, Port Deposit, who enlisted with the British forces in 1917 and later joined the American Army, has been slightly wounded. Dr. Richards was stationed in a field hospital behind the firing line and had just recovered from the effects of being gassed.——Dr. Arthur L. Fehsenfeld, Baltimore, who was recently operated on for appendicitis, is recovering at the University Hospital.

MASSACHUSETTS

Personal.—Dr. Jacob J. Golub, Dorchester, Boston, has been appointed acting assistant surgeon, U. S. P. H. S., with station at Long Wharf, Boston.——Dr. Paul Thorndyke has been appointed clinical professor of genito-urinary surgery, Dr. George R. Minot, assistant professor of medicine, Dr. Isaac Chandler Walker, assistant professor of medicine, and Dr. Cyrus H. Fiske, assistant professor of biological chemistry in Harvard Medical School.

Red Cross Convalescent Hospital.—A Red Cross convalescent hospital has been established at Cuttyhunk for convalescent officers of the Army, Navy and Allies, and Red Cross. The hospital is located on an island at the mouth of

Buzzard's Bay, lying between it and Vineyard Haven. All applications for admission should be made to Dr. Norman E. Ditman, medical director, and all officers will be met on arrival by boats at New Bedford. The hospital will remain open until October 1.

MICHIGAN

Whooping Cough Arm Band.—A regulation to enforce the wearing of a yellow arm band bearing the words "whooping cough," by children afflicted with the disease and the placarding of the houses in which the disease is found, went into effect in Detroit, July 16. Refusal to wear the arm band will entail arrest and prosecution. Wearers of this arm band are not to be admitted to places of public entertainment.

Reorganization of Administrative Staff.—Due to the absence of Dean Vaughan in war service, a reorganization of the administration staff of the University of Michigan Medical School was made necessary. The present officers are as follows: dean, Victor C. Vaughan, M.D., LL.D., Colonel, M. C., N. A. (absent on leave); assistant dean, Charles W. Edmunds, A.B., M.D.; acting secretary, Rollo E. McCotter, M.D., and assistant secretary, Ethel Bradley Flick.

MINNESOTA

Fight on Venereal Disease.—Application for an apportionment for Minnesota, of the million dollars which was voted by Congress to aid states in their campaigns against venereal disease, was made by Dr. Harry G. Irvine, Minneapolis, director of the venereal division of the state board of health, July 13. This application is based on action taken by the state emergency board allowing $35,000 for this campaign in Minnesota.

Personal.—Dr. Harry A. Britton has been appointed acting superintendent of the Minneapolis City Hospital, succeeding Dr. Herbert O. Collins. Dr. Britton will take up his new duties, August 31.——Dr. T. M. Hall, formerly health commissioner of Minneapolis, has been appointed superintendent of the State Sanatorium for Consumptives, Walker, succeeding Dr. George W. Beach who has resigned to enter the military service.

NEBRASKA

Personal.—Dr. John P. Barry, Hebron, who has been ill with pneumonia at Fort Riley, Kan., is reported to be convalescent.

Addition to Medical School.—Excavation was started, July 18, for the foundation of the additional building to the University of Nebraska Medical School, Omaha, to be erected at a cost of $150,000. The new building will be four stories in height, red brick and will home the laboratories of pharmacology, physiology and biologic chemistry.

Midsummer Medical Meeting.—The midsummer meeting of the Elkhorn Medical Association was held at the Norfolk Country Club, July 16, and Col. John M. Banister, Omaha, president-elect of the state medical association, delivered an address on "Medical Necessities of the War." The winter session of the association will be held at Omaha or Fremont.

NEW JERSEY

Personal.—Chester H. Mills, health officer of Montclair for thirteen years, announces his resignation to take effect, August 15, in order to become state commissioner of health of Delaware.——Dr. Frederick W. Maroney, Trenton, has been appointed instructor and director of physical education and hygiene in the state school system.——Dr. Henry P. Hess has been appointed attending physician to the Isolation Hospital, Paterson.

Open Army Medical School.—An Army medical school, said to be the first of its kind in the country for the reconstruction of deaf and nearly deaf soldiers, was opened yesterday in the New Hotel, Cape May. Major William W. Keen, M. R. C., U. S. Army, compared conditions today with those during the Civil War, in the opening address. Lieut.-Col. Charles W. Richardson, in charge of the new school, and Col. Paul F. Straub, commandant of the base hospital, explained the purposes of the institution.

NEW YORK

Brazil School Director in Albany.—Dr. Monsillo Sobia, medical director of schools of Brazil, visited Albany, July 20, and interviewed Dr. Clinton P. McCord relative to the inspection work which is being carried on in the public schools.

Child Welfare Work in Buffalo.—The city council of Buffalo, July 10, adopted a report authorizing an appropriation of $15,000 for child welfare work. The money will be used for the equipment of nutrition clinics, for the care of convalescent mothers and sickly babies, for the health education of parents and children, and for the prevention of stillbirths.

Personal.—Dr. Frederick W. Fletcher, Freeport, has succeeded Dr. Louis N. Lanehart, resigned, as a member of Local Board No. 3.——Dr. John A. Lichty, Pittsburgh, formerly a member of the medical staff of the Clifton Springs Sanatorium, has been elected president of the board of trustees of the institution.——Dr. Calvin E. Nichols, health officer of Troy for eighteen years, has resigned.

Beloved Physician Honored.—The memorial statue of the late Dr. Edward A. Trudeau, founder of the Adirondack Cottage Sanatorium, now known as the Trudeau Sanatorium, Saranac, will be unveiled, August 10. The principal oration will be made by Rev. Philemon F. Sturgis. The statue is a gift of former patients of the sanatorium, and will bear an inscription indicative of the love and gratitude of the donors.

New York City

Physical Examinations for New York Children.—The Health Committee of the Mayor's Committee on National Defense has begun the work of making physical examinations of all children under 5 years of age. More than 100 nurses, welfare and social workers and 300 physicians have volunteered to work at least two days a week without charge. During the week of July 15 about 3,000 children were examined. Dr. S. Josephine Baker, director of the bureau of child hygiene of the department of health, is directing the work. She states that there are more than 600,000 children to be examined.

Health Department Warns Druggists Against "Ear Oil."—The manufacturer of "Leonard's Ear Oil," following a complaint of the health department, was arrested and arraigned before the Court of Special Sessions which adjudged him guilty of making false statements and claims and sentenced him to thirty days in jail or to pay a fine of $250. He paid the fine. The department of health now warns all druggists that the continued sale of "Leonard's Ear Oil" with these false and fraudulent statements attached will constitute a violation of the Sanitary Code, and will subject the druggist so doing to prosecution by the department of health.

Health Department Wants Bureau of Oral Hygiene.—A resolution has been introduced before the committee on general welfare of the board of aldermen which provides for the creation of a bureau of oral hygiene in the division of child hygiene of the health department. At a hearing recently held for the purpose of discussing this resolution, Dr. S. Josephine Baker made the statement that of all the pupils in the schools of New York 67 per cent. had been found by the department inspectors to have defective teeth. The health department now conducts a number of dental clinics but desires to make these clinics mandatory on the health commissioner.

Board of Regents Gives Hearing on Women's Hospital Control.—The Alumnae of the New York Medical College and Hospital were granted a hearing before the board of regents, July 22. After listening to the argument of the counsel of the Alumnae Association the board of regents ordered the trustees to submit at once a detailed report of the finances of the institution. The women physicians have met with marked success in their effort to raise $50,000 with which to continue the work of the hospital but they cannot go further until they have a knowledge of the financial affairs of the institution. When they get entire control of the institution they intend to turn it over to the government for war needs.

Major Caldwell Leaves Estate to Columbia University.—The will of Major Eugene Wilson Caldwell, M. R. C., U. S. Army, which was recently filed for probate, leaves the bulk of his estate of about $150,000 to Columbia University on the death of his wife and mother. His laboratory and its contents and the good will of the establishment he leaves to his collaborators, Dr. Harry M. Imboden and Thomas Ricker. He requested them to continue the work on which he was engaged. A device that he recently perfected for determining the depth of a foreign body beneath the skin by photography, he gave to the United States government at the outbreak of the war. The bequest which Columbia University will receive is to be known as the Eugene Wilson Caldwell Fund for general educational purposes.

MEDICAL NEWS

OHIO

Personal.—Dr. Erwin A. Peterson, Cleveland, will leave for Italy next month with the Red Cross Antituberculosis Unit. ——Dr. Anderson L. Smedley, health officer of Hamilton since 1912, has resigned to take effect, August 14. He will enter the military service.——Dr. Everett E. LeFever, Athens, fractured his arm recently.

Educational Features of Venereal Campaign.—The state department of health has issued three new pamphlets of instruction regarding sex matters and venereal disease as educational features of the state campaign. The pamphlets are entitled "Some Things a Young Man Should Know About Sex and Sex Diseases," "How Any Boy Can Develop His Health and Strength," and "How to Instruct Your Child in the Facts of Sex." They are for free distribution. In the pamphlet on sex instruction, parents are advised as to the necessity for forestalling improper instruction from evil-minded companions by proper instruction in the home, and as to methods of conveying the necessary information. The pamphlet for boys gives general advice for physical development, bringing sex in as one of the phases of bodily health which must be considered. The pamphlet for young men deals plainly with the question of how a man should order his sexual life, stating the facts and leaving the individual to decide what course he will pursue. Pamphlets for girls and young women will be issued later, according to the health department.

PENNSYLVANIA

Carlisle Indian School to Become Base Hospital.—The Indian school, located at Carlisle, is to become a base hospital. This institution has been used for the last forty years as an educational institution for the Indians. It has been turned over to the War Department and in the future will house convalescent soldiers.

Philadelphia

Personal.—Dr. Albert E. Blackburn has been reappointed to the secretaryship of the city board for registration of nurses.——Dr. Henry K. Gaskill has resigned as chief of clinic and assistant professor of dermatology in the Jefferson Medical College Hospital.——Dr. Frank C. Hammond has been appointed medical aide to Governor Braumbaugh, succeeding Dr. Edward P. Davis.

CANADA

Hill Resigns.—Capt. Hibbert W. Hill, who recently resigned as medical officer of health of London to become director of public health of the state of Minnesota, has been presented with a handsome club bag by the medical men of London.

Additional Military Board.—An additional military medical board of review for Toronto district to be known as Board No. 4, has been appointed consisting of Lieut.-Col. Henry Bascom, Oshawa, president, Capt. C. C. Tissett, Brantford, and Capt. Robert J. Gibson, Sault Ste. Marie. The board will sit in Toronto for the present with Board No. 1.

New Ottawa District Officers.—The Ottawa District Medical Association held its annual meeting at Hull, July 27, under the presidency of Dr. J. D. Archambault, decided to petition the Provincial government for the establishment of a Workman's Board of Compensation, and elected the following officers: president, Dr. J. G. U. Archambault, Hull, Que.; vice presidents, Drs. Emile V. Desy, Ste. Rose de Lima, and J. Robillard, Thurso, Que., and secretary-treasurer, Dr. Joseph E. D'Armours, Papineauville.

GENERAL

Eye, Ear and Throat Men to Meet.—The annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Denver, August 5 to 7, under the presidency of Major Allen Greenwood, Boston.

Bequests and Donations.—The following bequests and donations have recently been announced:

East River Home Foundation, New York City, has made the following appropriations from its net income from the past year for the relief of tuberculosis: tuberculosis work of the Vanderbilt Clinic and Presbyterian Hospital tuberculosis clinic, each $9,000; civilian tuberculosis relief work in France, under the direction of the American Red Cross, $8,000; the Trudeau Sanatorium, Saranac Lake, N. Y., and the philanthropic work of the Loomis Sanatorium, each $3,000; the New York Association for Improving the Condition of the Poor, New York City, $2,500; the Stony Wold Sanatorium for the tuberculosis league work, Lake Kushaqua, N Y., $2,000; the Hospital and House of Rest for Consumptives, Inwood, N. Y., $1,000, and the Henry Street Settlement for tuberculosis nursing, New York City, $500.

Presbyterian Hospital, New York City, $7,500, Bridgeport Hospital, Bridgeport, Conn., $10,000 by the will of John W. Sterling.

Institutions for the benefit of sufferers from tuberculosis, $5,000 by the will of Severt J. Marwick, Story City, Iowa.

FOREIGN

Death of German Pediatrist.—The *Nederlandsch Tijdschrift* mentions the death of the Berlin pediatrist, Prof. Ad. Baginsky, aged 75. He founded the *Archiv für Kinderheilkunde* in 1879.

Medical Unit Reaches London.—The first all Jewish medical unit composed of forty-three physicians, nurses, sanitarians, administrators and officers has reached London on its way to Palestine where it is to establish a public health service.

Cholera Appears.—Cholera has appeared in Moscow where 224 known cases, seventy-eight suspected cases, and twenty-six cases of stomach disease have been recorded.——Up to the present 120 cases of cholera have occurred in the province of Petrograd.——July 18, six cases of Asiatic cholera were reported from Stockholm, Sweden, on board the Swedish steamer which arrived from Petrograd, July 11.——It is reported from Copenhagen that 500 deaths from cholera occur daily in Petrograd, and that there are thousands of cases of the disease in Saratov.

Repatriated Tuberculous Italian Soldiers.—In June the Italian Red Cross train proceeded directly into Austria to get the tuberculous prisoners of war who were to be repatriated. On reaching the borders of Switzerland the physicians and nurses in charge of the train were substituted by Swiss, only one railroad official and the steward remaining on the train for the entire trip. The difficulties both of a diplomatic and railroad traffic nature were great, but were finally surmounted. The repatriated tuberculous prisoners were thus taken direct from Feldkirch in Austria to the sanatorium at Nervi, on the Italian shore, without change of cars.

A Medical Annual Meeting in Wartime in a Neutral Country.—The notice of the eighty-ninth general meeting of the medical Centralverein of Switzerland states that "notwithstanding the difficulties of the present time and the constantly increasing difficulties, we physicians of Switzerland must not get out of touch with each other. Hence the members of the *Verein* are summoned to this meeting." . . . It is stated that beverages will not be served with the lunches, and members are specifically warned not to forget to bring their bread and fat ration cards with them. The main address will be by Nägeli on the endocrine aspects of chlorosis, but the one subject appointed for discussion, with three addresses to open it, is the extent and causes of and the means to combat the declining birth rate.

Organization of Physicians in French Legislature.—The thirty-four medical members of the upper and lower houses of parliament in France have recently organized and decided to hold monthly meetings and seek to keep in closer touch with the profession in general. It is planned to have the chairman and secretary of the organized medical members attend the meetings of the more important medical organizations, especially the medical syndicates, when the latter have anything special they wish to discuss with them. The *Nederlandsch Tijdschrift* remarks that if the seven medical members of the Netherlands parliament would forget the party lines now separating them, and attend certain board meetings of the National Medical Association, it might prove possible to avert much legislation detrimental to the profession. "But this," it adds, "is altogether too beautiful a dream."

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Dr. Darling Appointed Professor in Brazilian School.—Dr. Samuel T. Darling of the International Health Board has been appointed professor of hygiene and director of laboratories of the Faculdade de Medicina e Cirurgia of São Paulo, Rua Brigadeiro Tobias 45, São Paulo, Brazil.

Lebredo Member of Rockefeller Institute.—Dr. M. G. Lebredo, a leading hygienist, bacteriologist and laboratory worker of Cuba and member of the editorial staff of the *Revista de Medicina y Cirugia* of Havana, has been appointed a member of the Rockefeller Institute and is leaving on a scientific mission for Ecuador on behalf of the institute.

Subscriptions for War Aid for French Physicians.—A Havana exchange relates that all the medical organizations of Cuba have contributed to the French war fund, the Caisse d'Assistance Médicale de la guerre et secours de guerre de la famille médicale, the sum of 1,205 pesos being thus raised and forwarded through the French minister to Cuba. The list of donors included the committee of former students of the University of Paris, the four medical and the one dental and one pharmaceutic organizations, and the six leading medical journals, the Medical Press Association and the committee in charge of the recent National Medical Congress.

Prophylaxis of Disease in Brazil.—An important step has been taken in Brazil by the founding of the Liga Pro-Saneamento do Brazil with the comprehensive program of promoting in every possible way the physical and moral health of the population of Brazil. The aim is to aid the public authorities in every way, indirectly and directly by commissions of experts when such are needed in combating malaria, Chagas' disease, leishmaniasis, syphilis, trachoma, leprosy, etc. Owners wishing to improve the sanitary condition of their ranches will be given expert advice. The league plans to establish branches throughout the country, with subcommittees to carry on the work. One of the first resolutions adopted was to demand the abolishing of taxes and duties on articles necessary in sanitation, and reduction in the price of such articles to render their adoption easier. A sanitary code for the republic is to be drawn up and presented for the approval of the legislature, hoping by this means to standardize the work and establish the responsibility of the state, the province and the community. The Conselho Supremo de Assistencia is to consist of forty members, medical and lay, with Prof. Miguel Couto as the president. The executive board consists of Dr. B. Penna E. de Andrade and R. de A. Magalhaes, besides three vice presidents, secretary and treasurer. The *Liga* has a local habitation in the Journal de Commercio building. Chagas, A. de Castro, Austregesilo and Carlos Seidl, chief of the National Public Health Service, are among the members of the advisory board and the president of the republic is the honorary president. The details of the new organization were given in the *Revista Medico-Cirurgica do Brazil* which mentions also that S. Paulo has had a Codigo Sanitario for some time, and that it has rendered inestimable services in that district.

LONDON LETTER

London, July 2, 1918.

The Medical Grading of Recruits

In The Journal, June 1, p. 1618, the grading system of the older recruits aged between 43 and 50, now brought under medical review for the first time, was described. A good deal of concern has been manifested in Parliament and elsewhere as to whether these older men will be given training and duties of which they are capable. Replying to questions in the House of Commons, Sir Auckland Geddes, Minister of National Service, said that the definitions of the grades had been most carefully drawn up. The instructions giving all the conditions that should exclude and the conditions which allow a man to be included in any grade filled twenty-eight pages. The clause had been quoted which said that men who fulfilled the conditions named for Grade I were fit for general service in the army, but there was also the instruction that the physical training of the men was to be carried out under medical supervision. Every man required two indexes to place him in the proper place in the posting chart —his grade and his age. The combination of these settled his place in the "square" and the service he was to render. The actual posting was a matter for the War Office, but it worked closely with the civilian medical board. The only thing that a physician could do was to judge on the physical signs whether a man was reasonably fit for his age. Sir Auckland Geddes admitted that the results of some of the medical boards had given grave cause of anxiety. But a great number of examinations had been made within a short period. A quarter of an hour was allowed for every examination. It was not possible to examine every man in a quarter of an hour, nor was it necessary to examine every man for a quarter of an hour. Many cases could be dealt with in two or three minutes, because the man was either rejected or was obviously of the lowest grade that could become available for service. Men in Grade III of the new age period were not being called on, so that it was not necessary to submit them to an elaborate examination.

Maternity and Child Welfare

Mr. Hayes Fisher, president of the Local Government Board, moved the second reading of the maternity and child welfare bill, by which he proposes to extend the powers of local authorities in England and Wales with regard to motherhood and the care and welfare of the infant population of the country. Similar powers are now exercised by local authorities in Scotland and have been used with considerable success. The objects are proposed to be carried out by a system of maternity and child welfare committees which the local authorities are required to set up. For the administration of the new powers it has been thought advisable that a council should include members to the proportion of about one third who had not been elected but were peculiarly fitted for the work. Among the powers which the local authorities will be able to exercise without stepping outside the law is the provision of crèches, day nurseries and convalescent homes. The Local Government Board also attaches great value to local authorities setting up complete schemes for maternity and child welfare centers.

The Health of Munition Workers

Every effort is made by the government to safeguard the health of munition workers. An elaborate "welfare" scheme, by which voluntary and other workers supervise the conditions of work and the facilities for obtaining food and recreation, has been in force almost since the beginning of the war. Committees have been appointed by the government from time to time to investigate the subject. The latest one had as chairman Sir George Newman, medical chief of the board of education, and included Sir Thomas Barlow, Sir Morley Fletcher, Prof. Leonard Hill, a labor member of Parliament and some large employers. The report states that the environment and conditions of employment of munition workers throughout the country are now vastly better than they were two and a half years ago, though there is still much room for improvement, and further care and attention are essential if a serious breakdown of industry is to be avoided. Among the conclusions of the committee are the following:

Women in Industry: Hitherto there has been no marked breakdown in the health of women workers, but the strain is probably greater than is yet apparent, having been counteracted or disguised by improved food, better factory environment, welfare supervision, and the dropping out of the physically weaker. Many women can keep working only by abandoning all recreation and social intercourse. Shorter hours, medical supervision, careful choice of workers, and other precautions are necessary. Owing to the strain of home claims, married women workers need special attention, especially during pregnancy and while caring for young children. They should be kept on "light" work as far as possible, and some relaxation at the beginning and the end of the day is recommended.

Hours of Labor: In January, 1916, the committee recommended that the average weekly hours of work for men and boys should be limited to 65 or 67, and those of women workers and boys under 16 to 60. Two years' experience shows that even these reduced hours are now too long, and can be substantially reduced without loss of output.

Shifts and Breaks: The three-shift system, especially for women, is recommended; the difficulties of organizing it are ordinarily surmountable. Work before breakfast is a mistake, and many women and young persons cannot profitably be employed for five hours on continuous work. Authorized rest pauses, systematically determined, are desirable, and all workers should be allowed periodic holidays, preferably of several days' duration.

Sunday and Night Work: Sunday labor has been conclusively proved to be unpopular, uneconomical, and not productive of increased output. Night work is uneconomical and unnatural, and among women and girls it should be stopped as soon as it ceases to be essential. Among boys under 16 it should be altogether stopped.

Sickness, etc.: To prevent sickness, the preliminary medical examination provided for in certain works should be extended to all workers, especially when dangerous substances are handled. Periodic reexamination is also necessary. In the case of young persons their school medical records should be consulted. Adequate medical and nursing schemes are necessary. Poisoning in trinitrotoluene works depends to some extent on personal idiosyncrasy. The great majority of workers are insusceptible; those affected are not always the delicate and ill nourished. Protective clothing (essential where dirt, dust, damp, heat or dangerous machinery is involved) is desirable for all workers, and especially for women and girls. Comfortable seats should be provided during meal hours.

PARIS LETTER

Paris, June 27, 1918.

Regeneration of Bone After Resection

Dr. Leriche of Lyon presented a communication to the Société de chirurgie de Paris recently in which he described an operation for resection of the hip which makes it possible to obtain a regeneration of the femoral neck. A very interesting discussion was held. Dr. Tuffier attributed the good results obtained by Leriche to the fact that he, like all the surgeons of the École de Lyon, used instruments which not only loosened the periosteum but which entered the bone, whereas most surgeons try only to loosen the periosteum. Any resection which is to be followed by bone regeneration must be not only subperiosteal but intraosseous. This procedure is supported by Dr. Quénu, who stated that, theoretically, Ollier had attributed all the regenerative power to the periosteum, when, as a matter of fact, he always left attached to the periosteum a layer of bone cells—*couche osseuse*—and not merely medullary tissue to be detected only with the microscope. Recent research, especially by Dr. Heitz-Boyer, tends to show that bone regeneration will take place only from bone, and that the periosteum, of itself alone, without any bone cells attached to it, is wholly negative from the osteogenetic standpoint. Dr. Mauclaire stated that for several years research made in America has shown that in order to have bone regeneration take place, it is necessary that the periosteum have bone cells adherent to it.

Eventual Evacuation of Paris and Its Hospitals

At this time the eventual evacuation of Paris is being agitated by the press and it appears to occupy a large share of public attention. M. G. Mesureur, director of l'administration générale de l'Assistance publique, has informed the directors of the hospitals of Paris that there is no need for them to give that matter a single thought. Any measures of that kind, in case of necessity, should be directed only to the children and the aged in institutions. M. Mesureur is of the opinion, and justly so, that all hospitals should continue their usual activities in caring for the wounded from the front sent to them by the Service de Santé militaire, as well as for the sick and wounded civilians whose admission cannot be deferred or postponed. It is unfortunate, however, that in his communication to the hospital directors, M. Mesureur said: "First of all, you should by your example show the personnel (physicians, nurses and subordinates that their first duty is to remain at their posts, no matter what the circumstances may be." Dr. G. Variot of the hospice des Enfants-Assistés stated that the doctors in the hospitals did not need to be set an example by the administrative agents of the Assistance publique in order to do their duty. He said: "It is most inopportune to doubt the morale of the medical staff of the hospitals, who do not stand in need of any exhortation when it is a question of dignity, courage and devotion."

Interrupted General Anesthesia

At a recent meeting of the Société de chirurgie de Paris, Dr. Henri Chaput demonstrated a method of anesthesia consisting in the alternate administration and suppression of the anesthetic in the course of the operation. At the beginning of the procedure, the anesthetic (chloroform, ether, ethyl chlorid) is given in a quantity just sufficient to suppress sensibility and all reaction on the part of the patient. The anesthetic is then discontinued and the operation is proceeded with until the patient begins to react in such manner as to interfere with the progress of the work; then the anesthesia is resumed and continued until the patient is again in condition for the surgeon to proceed with the operation, and so on.

The advantages of this method are said to be: The corneal reflex is preserved; the face keeps the normal tint; the pupils are not modified to any extent; the pulse is strong and of good quality; the patient never vomits during the operation; cardiac or respiratory syncope never occur. As soon as the anesthesia is terminated, the patient regains consciousness almost immediately; the face is of good color and the features are calm. There is never any postoperative vomiting, sickness or shock; no icterus; and if it is a case of operation above the umbilicus the patient can get up the same day and go home. Chaput has used this method of anesthesia in more than 100 cases without any untoward accident.

Deaths

Lawrence William Littig, Iowa City, Iowa; State University of Iowa, Iowa City, 1883; University of Pennsylvania, Philadelphia, 1884; M.R.C.S. (Eng.), 1887; aged 59; a Fellow of the American Medical Association, and chairman of the Hospital Section in 1916; president of the Iowa State Medical Society, 1911-1912; president of the Western Surgical Association in 1916; secretary of the Iowa and Illinois District Medical Society; a member of the American Association of Railway Surgeons, Mississippi Valley Medical Association, Medical Society of the Missouri Valley, and many other special societies; professor of anatomy in the State University of Iowa, Iowa City, from 1889 to 1891; professor of theory and practice of medicine from 1891 to 1902, and assistant to the chair of surgery from 1899 to 1902; director of the University Hospital from 1900 to 1902; at one time physician of Scott County; attending surgeon to Mercy and St. Luke's hospitals, Davenport; a surgeon of international repute; died in a hospital in Iowa City, July 16, from septicemia following the bite of an insect.

Luther Dana Waterman, Indianapolis; Medical College of Ohio, Cincinnati, 1853; aged 87; surgeon of the 39th Indiana Volunteer Infantry, and later division medical director in the Army of the Cumberland; one of the founders and for several years professor of anatomy in the Indiana Medical College; secretary of the Indiana State Medical Association, and its president in 1878; a charter member of the Indianapolis Literary Club; who recently gave more than $100,000 for the foundation of the Waterman Institute for Scientific Research at the University of Indiana; died at his home, June 30.

Samuel Logan, New Orleans; Tulane University, New Orleans, 1900; aged 42; a Fellow of the American Medical Association; visiting surgeon to Charity Hospital, New Orleans, senior chief of clinics to surgical department and assistant demonstrator of anatomy in his alma mater; who made several trips to Africa as a medical officer on British transports during the Boer War; died at his home, July 1.

Edward Henry Sholl, Birmingham, Ala,; Pennsylvania Medical College. Philadelphia, 1856; aged 86; a surgeon in the Confederate service throughout the Civil War; a charter member of the Jefferson County Medical Association; at one time professor of medical history in Birmingham Medical College; died at the home of his son in New Orleans, July 13.

Ida Grant Rhoades, Cedar Falls, Ia.; Drake University, Des Moines, Ia., 1896; aged 38; a Fellow of the American Medical Association; for three years secretary of the Society of Iowa Medical Women, and since 1916, secretary of the Blackhawk County Medical Society; died at her home, June 20, from uremia.

William Alexander Packard, Fort Morgan, Colo.; College of Physicians and Surgeons, Keokuk, Ia., 1881; aged 66; at one time a Fellow of the American Medical Association; for several years physician to the Soldiers' and Sailors' Home, Monte Vista, Colo.; died at his home, July 10, from heart disease.

George G. Murray, Bellows Falls, Vt.; University of the South, Sewanee, Tenn., 1901; aged 43; at one time a Fellow of the American Medical Association; a member of the Vermont State Medical Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, July 5, from pneumonia.

William Hunt Hall, New York City; New York University, New York City, 1858; aged 85; at one time a member of the Medical Society of the State of New York; a surgeon in the Confederate service and in charge of a base hospital, at Petersburg, Va., during the Civil War; died at his home, July 8.

John Shiver Wentz, Philadelphia; University of Pennsylvania, Philadelphia, 1864; aged 81; a surgeon of U. S. Volunteers during the Civil War; for many years a leading coal operator; a trustee of the Presbyterian Hospital, Philadelphia; died at his home, July 1.

Gottfried Merkel, New York City; Long Island College Hospital, Brooklyn, 1907; aged 51; attending surgeon to the German Hospital; while on his way in his motor car to make a professional call, July 16, was struck by a fire patrol car, and instantly killed.

Henry Knappenberger, Macomb, Ill.; Rush Medical College, 1881; aged 67; a Fellow of the American Medical

Association and past president of the McDonough County Medical Society; died at his home, July 1, from disease of the gall bladder.

T. N. Sellers, Island Ford, Va.; University of Virginia, Charlottesville, 1854; aged 88; for many years justice of the peace; from 1873 to 1875 a member of the Virginia House of Delegates; died at his home, July 7, from senile debility.

August Helmbold, Newport, Ky.; Eclectic Medical Institute, Cincinnati, 1887; aged 55; a Fellow of the American Medical Association; first mayor of Newport under the commission plan; died at his home, July 9, from nephritis.

Axel Alexander Pesonen, Duluth, Minn.; University of Michigan, Ann Arbor, 1911; aged 38; a member of the Minnesota State Medical Society; died in St. Mary's Hospital, Duluth, July 17, from gangrenous appendicitis.

Clarence A. Warwick, Chicago; Hospital College of Medicine, Louisville, Ky., 1898; aged 45; a veteran of the War with Spain; who later had Philippine service; died at his home, July 22, from heat prostration.

Richard O'Leary, Vicksburg, Miss.; New York University, New York City, 1861; aged 80; surgeon in the Confederate Service during the Civil War; twice mayor of Vicksburg; died at his home, July 2.

Lemon Dwight Washburn, Farmingdale, N. Y.; Albany, N. Y., Medical College, 1906; aged 38; at one time a member of the Medical Society of the State of New York; died at his home, recently.

Paul E. Buchanan, Gary, Ind.; Meharry Medical College, Nashville, Tenn., 1911; aged 33; was found dead beneath his overturned automobile, near Hammond, Ind., July 11.

John C. Hamilton, Seattle, Wash.; Cincinnati College of Medicine and Surgery, 1875; aged 65; for twenty-five years a practitioner of Ithaca, O.; died at his home, July 14.

Philip J. Brady, Hastings, Minn.; Jefferson Medical College, 1909; aged 36; a Fellow of the American Medical Association; died at his home, July 20, from nephritis.

John M. Carter, Jackson Center, Ohio; Cincinnati College of Medicine and Surgery, 1868; aged 79; died in a hotel in Hot Springs, Ark., July 7, from cerebral hemorrhage.

Thorsten N. Kjerland, Webster, S. D.; Hamlin University, Minneapolis, Minn., 1898; aged 57; a Fellow of the American Medical Association; died at his home, June 1.

Herman Olaus Fjelde, Rolla, N. D.; University of Minnesota, Minneapolis, 1895; aged 52; died at his home, July 14, from cerebral hemorrhage.

A. B. McNaughton, Augusta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; aged 58; died at his home, June 15.

Henry Neville, Jamestown, N. Y.; Homeopathic Hospital College, Cleveland, 1872; aged 78; died at his home, July 16.

Eli B. Conaway, Centerville, W. Va.; Miami Medical College, Cincinnati, 1874; aged 70; died at his home, July 15.

Henry F. Baker, Yellow Springs, O.; Pulte Medical College, Cincinnati, 1875; aged 72; died at his home, July 19.

William Karniol, New York City; University and Bellevue Medical College, 1902; aged 40; died at his home, July 1.

Marriages

Lieut. John Harrison Alexander, M. R. C., U. S. Army, Pittsburgh, on duty at Camp Grant, Rockford, Ill., to Miss Marie Christine Myers of Rockford, Ill., July 10.

Capt. Charles Shewell Abbott, M. R. C., U. S. Army, Philadelphia, on duty at Fort Riley, Kan., to Mrs. Rhoda M. Stevens, at Salt Lake City, Utah, July 6.

Lieut. H. F. Alves, M. R. C., U. S. Army, on duty at Camp Travis, Texas, to Miss Ruby Tracy of Houston, Texas, July 3.

Lieut. Daniel Milliken Skinner, M. R. C., U. S. Army, Hamilton, Ohio, to Miss Bess Eigher of Cincinnati, July 4.

Grover Cleveland Beard, Kerr, N. C., to Miss Sallie Rebekah Herring of Wallace, N. C., July 2.

Thomas Hudson Harter to Miss Margaretta Laurine Wahl, both of East Brady, Pa., June 19.

George Kinney Dunklee to Miss Ruth McCaffrey, both of Denver, at Littleton, Colo, February 7.

Paul Jones to Miss Cordie L. Hall, both of Blue Ball, Ark., June 27.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

ANOTHER MAIL-ORDER FRAUD

The Dr. J. Russell Price Company is Debarred from the Mails

On June 25, 1918, the federal authorities denied the use of the mails to a fraudulent concern known as the "Dr. J. Russell Price Company" of Chicago. This concern was controlled by one Charles E. Cessna, of whom the Chicago *Tribune* said he "at different times in his business career has been a loan-shark, patent medicine vendor and land promoter."

The earlier name of the Price concern—"Dr. Joseph Lister & Company"—was abandoned in 1914 when the federal authorities commenced action against it and the business was continued under the name of J. Russell Price. Price, who seems to have been a mere figurehead, claims graduation by the National Medical University, a school that has been defunct for some time and even before it went out of existence was not recognized by the majority of the states in the Union. Price, it seems, is or was one of the vice presidents and directors of the "Liberal Medical Union," an organization of which another vice president and director was Quack Carr of "Peruna"-advertising fame.

Cessna was called on to show cause by Dec. 19, 1917, why a fraud order should not be issued against the "Dr. J. Russell Price Company" and "V. Leverne," the latter a "confidential address" under which mail was received by the company. At the request of James T. Lloyd, attorney for Cessna, a postponement was granted to Jan. 16, 1918. At that time Cessna appeared at the Solicitor's Office, Washington, D. C., with Mr. Lloyd and a Mr. Frank McMillin, another attorney. Inspector D. F. Angier of the Chicago Division, who for some years has done valuable work in investigating medical mail-order frauds and who made the investigation of the J. Russell Price concern, was also present and testified as a witness for the government. The hearing took five days. The charges in brief were to the effect that under the names of Dr. J. Russell Price Company and V. Leverne "one Dr. James Russell Price, one Dr. Charles E. Cessna and one Everett G. Cisle were engaged in conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises." Judge Lamar, the Solicitor for the Post Office Department in his memorandum to the Postmaster-General describes fully the facts in the case. To quote in part:

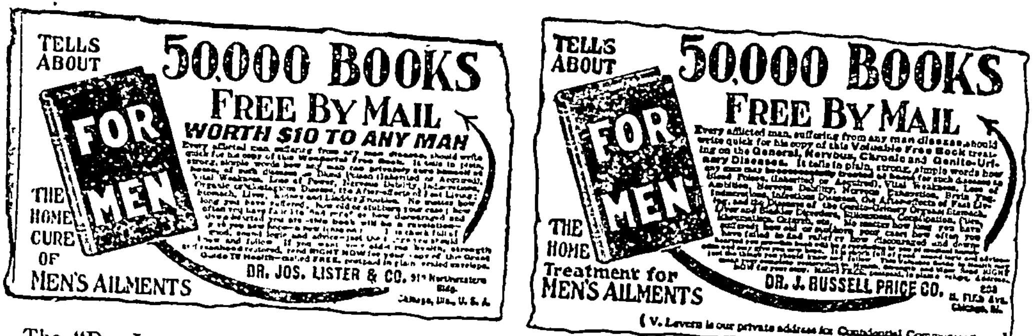
CONTROLLED BY CESSNA

"Dr. Charles E. Cessna who controls this company was the chief promoter of the business of Dr. Joseph Lister & Company of Chicago, Illinois, who were cited to show cause why a fraud order should not be issued against them on Sept. 15, 1914. That case was closed on the affidavit of Dr. Cessna, acting for the Lister Company, to the effect that the business had 'been entirely discontinued and abandoned and will not be resumed at any future date, and that the postmaster at Chicago, Illinois, had been directed to treat as refused all mail addressed to said Dr. Joseph Lister & Company, its officers and agents as such, and to Z. Wiren.' Z. Wiren was the name used by the Lister Company as a confidential address.

"While it is denied by Dr. Cessna that the J. Russell Price Company has continued the business of the Lister Company I nevertheless find from the evidence that this is in substance the case. At the time negotiations were taking place between this office and representatives of the Lister Company for the closing of the case without the issuance of a fraud order on the filing of an affidavit, Dr. Cessna bought control of the J. Russell Price Company, which was a small mail-order medical concern operating from Chicago, and reorganized it into a similitude of the Lister Company, and began sending out circular matter in which it was stated that the Lister Company was going out of business and that the Dr. J. Russell Price Company was its successor and urging those who had theretofore dealt with the Lister Company to continue their dealings with the Price Company.

"The advertisements and advertising matter of the Lister Company, modified to a slight degree, became those of the Price Company, and the *modus operandi* of the former company with nearly all of its fraudulent features was continued in the Price Company business. Essentially the two schemes differ not at all. Modifications of advertising matter were made in an effort to avoid some of the minor frauds involved in the old case. . . ."

"The one change throughout the matter used by the Price Company, on which Dr. Cessna laid great stress, is the substitution for the word 'cure' of the expression 'restored to health.' A less substantive change in terminology could hardly be imagined. These changes constitute practically all that were made with the exception of a few other immaterial modifications of language. Dr. Cessna was responsible for the representations in both cases.


TELLS ABOUT 50,000 BOOKS FREE BY MAIL WORTH $10 TO ANY MAN

FOR MEN

THE HOME CURE OF MEN'S AILMENTS

DR. JOS. LISTER & CO. 91st Northwestern Bldg. Chicago, Ills., U. S. A.

TELLS ABOUT 50,000 BOOKS FREE BY MAIL

FOR MEN

THE HOME Treatment for MEN'S AILMENTS

DR. J. RUSSELL PRICE CO.

(V. Leverne is our private address for Confidential Communications.)

The "Dr. Jos. Lister & Co." humbug went out of business—under that name—when Cessna, the promoter, was cited by the government to show cause why a fraud order should not be issued against it. This was in 1914. But the business itself went merrily on under the new name "Dr. J. Russell Price Co." Compare the advertisements reproduced above. The one important (?) change consisted in eliminating from the advertising the word "cure" and substituting the expression "restored to health."

A "HIT AND MISS" CONCERN

"The business of the Price Company, like that of the Lister Company, is what has become known as a 'hit or miss' mail-order medical scheme. Advertisements are inserted in newspapers of general circulation through the mails, and particularly in foreign and other newspapers which have a circulation among ignorant and credulous people, in which it is sought to lead the reader to believe that a great number of symptoms of disease set forth therein are amenable to the treatment prescribed by the company, and they are urged to send for a free trial treatment and a booklet further detailing the wonderful results which it is claimed will flow from the use of the alleged remedies prescribed.

"A symptom blank accompanies the booklet and the trial treatment. This symptom blank, which is a printed question blank the same in every case, contains a great number of queries under different headings, such as, 'inherited or constitutional diseases,' 'stomach disorders,' 'kidney or bladder disorders,' 'prostatic irritation and inflammation,' etc. There are a great number of questions on this blank but few under each division, and while they are of a character that might be helpful to a physician in making a diagnosis the evidence shows clearly that they are not such as when taken alone would enable a physician to determine which of a great number of diseases the patient was afflicted with. Nevertheless on the basis of the answers to these questions Dr. Cessna undertakes to 'restore to health' those induced to correspond with him."

It was shown at the hearing that the expressions used by the J. Russell Price concern in its advertising described either symptoms of disease or groups of diseases; that the symptoms are such as arise in a great many different conditions which it is impossible to differentiate by means of a symptom blank such as the concern used; that in order to determine what treatment would be applicable to any particular case, it was necessary to take into consideration many other things such as the condition of the blood, of the urine, respiration, temperature, etc., and that any alleged diagnosis made on the basis of answers to questions that were uniform in all cases would reveal practically nothing and that the prescribing of treatment on such information would, in the vast majority of cases, fail to relieve the patient. Judge Lamar's memorandum continues:

KNOWINGLY FRAUDULENT

"That Dr. Cessna well knew the fraudulent character of this enterprise is clear from his testimony at the hearing. He admitted on cross-examination in substance that his endeavor after the Lister case had been before the Department was to eliminate what he thought the Department would object to without reference to the truth or falsity of the representations made. The whole object of the man as clearly revealed at the hearing was to go as far as he could in continuing the fraudulent business of the Lister Company and eliminate only such minor features as he felt might give rise to complaint and bring him again before the Post Office Department.

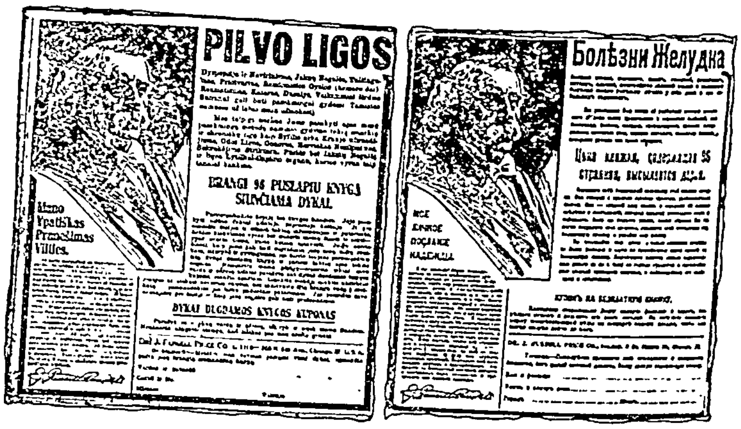
"The fact that Dr. Cessna is a physician makes his offense all the more flagrant. From his medical education he must know that this method of treating disease is entirely impracticable and that the representations he makes in pursuance of the scheme are without any scientific foundation."

In defense, Cessna showed that in some instances specimens of urine and of blood were called for and were sent to a laboratory for examination. The value of the urinalysis which Cessna caused to be made was shown by a test case conducted by Inspector Angier in which, in response to a call for a sample of urine, he sent to the J. Russell Price Company a mixture of water, albumin, pepsin, sodium chlorid and hydrochloric acid slightly colored. The specific gravity of this mixture was 1.020. The "analysis" showed the specific gravity as 1.030, and declared further that there was 1.6 per cent. of urea, no albumin, chlorids or phosphates! The memorandum says further:

"The name V. Leverne is used as a so-called confidential address.

"At the time of the issuance of the citation the postmaster's report showed the receipt by the company of 400 letters on an average daily.

"Through his attorney, Mr. Lloyd, Dr. Cessna has just submitted an affidavit to the effect that he has discontinued all advertising or circularizing for new business and that it is not his intention to advertise or circularize for new business in the future, and further that he is closing the business up and will within the next few months have it finally wound up and disposed of. As he is still obtaining remittances on the strength of the advertisements heretofore used, and as in view of his actions in the past no faith can be accorded to Dr. Cessna's promises as to his future conduct, I do not believe that the filing of this affidavit warrants the withholding of my recommendation for the issuance of a fraud order in this case."


PILVO LIGOS

DRANGI 96 PUSLAPIU KNYGA SIUNČIAMA DYKAI

DYKAI DUODAMOS KNYGOS KUPONAS

Болѣзни Желудка

Typical advertisements of the Dr. J. Russell Price Co. as used in the foreign-language papers—a class of publications now largely patronized by quacks who are unable to get their advertisements into the English-language papers.

As a result of this recommendation, the Postmaster-General closed the mails to the Price concern.

Correspondence

"OASES IN THE NATIONAL DESERT"

To the Editor:—Your editorial comment in The Journal, July 20, "Oases in the National Desert" seems especially pat here, as our town has just buried a man who bought six bottles of a beef, iron and wine preparation (19 per cent. alcohol), went up the river with a comrade in a boat and did not return until the river had been dragged for some eight or ten hours. If our government desires to make effective prohibition of alcoholic liquors for conservation of food or other reasons, it would seem that it must take into consideration the "patent medicine" evil.

H. H. Loveland, M.D., Republic, Mich.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE ARMY SCHOOL OF NURSING

To the Editor:—Please give me the following information concerning the Army School of Nursing: 1. What are the essentials of eligibility, such as educational prerequisites, etc.? 2. To whom is application for admission made? 3. What is the extent of the course and the amount of training given? 4. Will those completing the course qualify as graduate nurses? 5. Will those taking traininig have to bear their own expenses? 6. What salary is paid after completion of the course?

C. Max Anderson, M.D., Manteno, Ill.

Answer.—1. A candidate must be between 21 and 35 years of age, single or a widow, in good physical condition and of good moral character. She must be a graduate of a recognized high school or present evidence of an educational equivalent.

2. Candidates should make application to the Surgeon-General of the Army in person or in writing or through the Division Directors of the Bureau of Nursing of the American Red Cross, who may be addressed as follows:

New England Division, 755 Boylston St., Boston.
Atlantic Division, 44 East 23d St., New York
Pennsylvania Division, 1601 Walnut St., Philadelphia
Potomac Division, 930 Sixteenth St., N. W., Washington, D. C.
Southern Division, 424 Healy Bldg., Atlanta, Ga.
Lake Division, 929 Garfield Bldg., Cleveland
Gulf Division, Post Office Bldg., New Orleans
Northern Division, 202 Essex Bldg., Minneapolis
Central Division, 180 N. Wabash Ave., Chicago
Southwestern Division, 1617 Ry. Exchange, St. Louis
Mountain Division, 14th and Welton Sts., Denver
Northwestern Division, White Bldg., Seattle
Pacific Division, 942 Market St., San Francisco

The candidate should make application to the division director nearest her place of residence.

3. The Army School of Nursing, located in the Surgeon-General's Office, Washington, D. C., offers to women desiring to care for sick and wounded soldiers a course leading to a diploma in nursing if the military hospitals—in which the training will be given—continue in operation for the full period of the course. Should the cessation of hostilities occur before the completion of this period, credit for all branches of nursing completed will be given in a certificate by the Army School of Nursing that will entitle the holder to recognition by such civil training school as she may subsequently enter as a student.

The course extends over a period of three years. A credit of nine months, or approximately an academic year, will be given to graduates of accredited colleges, and credit of three or more months to students who have had two or more years of work in college or in approved technical schools that have included prescribed courses in the sciences. The course will be divided into a preliminary term of four months, which is also a probationary period, a junior year of eight months, an intermediate year of twelve months and a senior year of twelve months. A vacation of one month for each year in the school will be granted. Lectures, recitations and laboratory work will be given in the required subjects, and hours of duty on the ward will be arranged in accordance with the required class work. The military hospitals will provide experience in surgical nursing, including orthopedic, eye, ear, nose and throat work, and medical nursing, including communicable, nervous and mental diseases. Experience in the diseases of children, gynecology, obstetrics, and public health nursing will be provided through affiliations in the second or third year of the course.

Special consideration will be given to those who have taken the course in elementary hygiene and home care of the sick under the auspices of the American Red Cross, and such candidate should request application blanks from the division directors of the Bureau of Nursing or the instructors of the course in elementary hygiene and home care of the sick.

Candidates will be admitted in accordance with the needs of the service, the first class beginning about July 1, 1918.

The subjects included in the preliminary course will be: anatomy and physiology, applied chemistry, bacteriology, personal hygiene, hospital housekeeping, nutrition and cookery, drugs and solutions, elementary nursing principles and methods, bandaging, and the historical, ethical and social bases of nursing. The subjects following the preliminary course will include: materia medica and therapeutics, diet in disease, massage, surgery, orthopedics, diseases of the eye, ear, nose and throat, operating room technic, general medicine, communicable diseases, occupational, venereal and skin diseases, nervous and mental diseases, diseases of infants and children, gynecology and obstetrics. Public health nursing, social service and other subjects relating to the problems of the several fields of nursing and modern social conditions will be considered in the third year.

4. Yes.

5. No tuition fee is demanded. Students will be provided with board, lodging, laundry and textbooks during the course; but they will be required to provide themselves with indoor uniforms for the preliminary course, and on its completion, with an outdoor uniform and such additional indoor uniforms as are necessary during their residence in the school. Fifteen dollars a month is allowed to meet these and other school expenses, except for the period of affiliation.

6. On completion of the course the students will become members of the regular Army Nurse Corps in the order of the vacancies; in case there are no vacancies, they will be placed on the list for appointment as vacancies occur. These nurses receive $50 a month in the United States and $60 a month abroad.

DOSAGE OF VARIOUS SALTS OF QUININ

To the Editor:—In using quinin for malaria, is there much or any difference in the quantity of quinin alkaloid carried in the different salts? For instance, what size dose of the hydrochlorate or bisulphate would equal (in actual quinin) a 10 grain dose of the sulphate?

W. D. Wheless, M.D., Rayville, La.

Answer.—We give below a brief table comparing the dosage of the various salts of quinin about which our correspondent makes inquiry. It will be noticed that the difference in dosage when based on that of the U. S. Pharmacopeia quinin is not very great. In fact, we find on comparing all the ordinary salts of quinin of the U. S. Pharmacopeia and New and Nonofficial Remedies, that the greatest difference is between quinin and quinin bisulphate. It may be of interest to note that there are two hydrochlorids of quinin now official. The dihydrochlorid is much more soluble but contains almost exactly the same percentage of quinin as the ordinary hydrochlorid.

	Quinin, Per Cent.	If Dose of U. S. P. Quinin is 10 Grains
Quinin, U. S. P. (contains $3H_2O$)	85.71	10.00
Quinin hydrochlorid, U. S. P.	81.72	10.49
Quinin dihydrochlorid, U. S. P.	81.63	10.5
Quinin bisulphate, U. S. P.	59.12	14.5
Quinin sulphate, U. S. P.	74.33	11.54

This gives direct comparison of dosage on the basis of a 10 grain dose of official quinin. The comparison on the basis of a 10 grain dose of the sulphate is obviously almost the same.

INFORMATION DESIRED CONCERNING A VOCATIONAL SCHOOL FOR THE PARALYZED

To the Editor:—Please inform me if you know of any institution or school to which a young man with a paralysis following a poliomyelitis may be sent to learn some trade or vocation.

H. A. A.

Answer.—If any of our readers who know of such an institution will notify The Journal, we will forward its name to our correspondent.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

Hawaii: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

Iowa: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Book Notices

Dietotherapy. Chemistry and Physiology of Digestion, Classification and Analysis of Foods. By William Edward Fitch, M.D., Major, Medical Reserve Corps, U. S. Army, Attending Physician to the Vanderbilt Clinic, College of Physicians and Surgeons, New York City, and forty contributors. Published with the permission of the Surgeon-General of the Army. Three volumes. Cloth. Price, $21 net. New York: D. Appleton & Co., 1918.

These volumes: the first, on the "chemistry and physiology of digestion, classification and analysis of food"; the second, on "nutrition and diet in health," and the third labeled "nutrition and diet in disease," bear the *imprint* "published with the permission of the Surgeon-General of the Army." It would be unfortunate if any one were thereby led to believe that they were presented to the medical profession at the request of any department of the government; for it is assuredly surprising to find that they fall far short of representing the best that may be expected of writers in America, which has contributed so splendidly to the science of nutrition in recent years. It is an occasion for regret to find so much that is mediocre in a work that promises so much. We suspect that if reviewers were to confine their attention to some of the chapters of Volume I, on the chemistry and physiology of digestion and the properties of foods, the reaction on the publishers might be decidedly unfavorable. The contrast between the voluminous discussions in some of the earlier chapters and such a modest yet excellent book as Professor Sherman's "Chemistry of Food and Nutrition" or even the semipopular volume "Feeding the Family," by Mrs. Rose, leaves a feeling of regret at the failure to attain a higher standard in the larger effort.

In a measure these volumes represent reviews and excerpts from other writers on diet. In this way much that is "ancient" is handed down in the familiar unprogressive manner of commonplace textbook writing. Thus the authority of Liebig is presented for an attempt at a classification of foods. We read the inexact statement that "protein foods *are noncrystallizable*" (I, 56), and that "all starch molecules contain a certain proportion of nitrogenous material," etc. (I, 57)—specimens of inexcusable or slipshod comments that might be quoted in considerable numbers. Students of the present century will be astonished to find standard quantitative data expressed in *grains,* as for example: "The amount of nitrogen required . . . averages 300 grains" (I, 231), or "a daily requirement of about 360 grains of the inorganic salts" (I, 258), or again of "3,000 grains of sodium chlorid" (I, 256). In a chapter (I, Chapter V) on the processes of digestion in the alimentary tract, the digestive changes in the intestine seem to have been forgotten amid the rest of the somewhat confused discussion. Despite details about body components and food make-up, the classic researches of Jones and of Levene on the nucleic acids and their derivatives are entirely overlooked, though terpenes and aldehyds are discussed among the foodstuffs. E. E. Smith is quoted as authority for the statement that "the simple amino acid formed in the intestinal tract from protein breakdown are absorbed as such," etc. (II, 169), without mention of the pioneer discoveries in this important field. In the discussion of starvation (cf. II, chapter V), the classic investigations of the Boston Nutrition Laboratory of the Carnegie Institution find no reference amid the quotations from less carefully controlled records. A chapter discussing acidosis in detail scarcely mentions the noteworthy scientific work of distinguished American investigators in this field. No reference whatever is made to their names in the bibliography. One could fill a page with errors of statement, as, for example, the classification of "uric, hippuric and other radicles produced by catabolism or by fermentation" among inorganic substances (I, 55); the statement that "water absorbed in the intestine is rapidly passed into the lymphatics" (I, 249); that "water taken in moderate quantities acts as a diluent of the blood" (I, 251), or that "meat is one of the most important foods since *it is from animal flesh that the muscular part of the body derives its sustenance*" (I, 277). We are left to wonder how vegetarians ever survive the lack of animal flesh in the diet!

There are, furthermore, not a few extravagant statements to be found. Thus we are told dogmatically that "vitamines are the mother substances of ferment and hormones" (I, 378); that bananas develop an odor of amyl nitrite and "occasionally produce mild symptoms of vascular dilation"; that asparagus contains an "active principle," asparagin, which is an "arterial and nerve sedative," whatever that may imply to the uninitiated. For some undiscoverable reason the word "hydrocarbons" is used to designate fats in distinction from carbohydrates (I, 64, 92; II, 100). Obscure statements are also not lacking; thus, we are told "that a small amount of protein *in excess of the daily requirement for needed calories* may be stored" (II, 102), leaving the critical reader to his own devices of interpretation. The carelessness of chemical statements is further exemplified by the pronouncement that "the proteins differ from other foodstuffs in containing nitrogen, sulphur and phosphates" (sic) (I, 233). The statement that in "torpor of the liver"—this sounds like a "patent medicine" advertisement of a generation ago—"as the name denotes, the organ is tardy in performing its normal functions and has a tendency to become choked with bile, glycogen and urea" (III, 180) is almost humorous A. D. 1918. So is the platitude that "the mouth is an oval box situated at the beginning of the alimentary tract" (I, 108). Why rehearse such stuff to modern physicians? Why reiterate the properties of pure water? There is a pathetic humor in the comment on the functions of the bile: "Another property of this excrementitious biliary fluid is a medium for the separation of the excess of carbon and hydrogen from the blood, particularly during intra-uterine life" (I, 119, 120). It reads like the monographs of a century ago, and the editor tells us soberly that "as bearers of electricity the mineral elements dominate the whole course of metabolism" (II, 358).

The preface recommends the bibliographies following each chapter "for the convenience of those who may wish to go deeper into the subject." This sounds admirable; but how can the enthusiast for learning at firsthand be expected to find references such as the following selected from dozens of equally useless titles: Maxwell, Bio-Chem. J., Liverp.; Kraus, Ztsch. f. diätet. u physik. Therap.; Woodruff, J. Am. Cavalry Assn.; Auer, J. Am. Med. Assn.; Lane and Catherwood (no other data are given); etc. Authors' and typographic errors abound everywhere. A textbook of physiology is attributed to Isaac A. Abt (I, 251). A paper published in 1911 is credited to Liebig (I, 104). Urticaria is alleged to be due to histarium (histamin?), (III, 613). Among phospholipins such novelties of misspelling as cuerin, sphingomylin and jecavin are found (I, 100). Woodyatt, Kunkel, McCollum and Prausnitz are cited as Woodgat, Kimbel, McCallum, and Pransintz. Some of the lists of references as given look almost like printers' pi to one familiar at first hand with medical literature. The multiplicity of such errors is inexcusable.

Enough has been indicated to show the lack of up-to-date treatment in many of the chapters. Some of them are essentially cyclopedic in character, useful for reference rather than for continuous reading. Little effect seems to have been made to prepare analytic summaries of recent date. The table of the composition of meat products, for instance, dates back to 1891 (I, 288), although numerous recent statistics of this sort are easily available. There is an unpardonable amount of repetition. One diagram of Benedict's respiration apparatus is printed in three different places. Statements about the food requirements of man are reiterated over and over. Many of the tabulated data on the composition of foods are also duplicated unnecessarily (e. g., I, 273; III, 501, both somewhat out of date). Various contributors have seemingly written with little concern for the other collaborators; and the editor has often rehearsed their findings anew. Hypothetic vitamins are drawn on for much help—to assist digestion (III, 290), cure tuberculosis (I, 279), etc., without due critical consideration. Formidable words are conspicuous; witness trophology, trophodynamics, bradyphagia, etc.

In the third volume, dealing more largely with dietotherapy proper, a greater latitude of opinion is to be expected where tradition and clinical experience have so long acted as guides to feeding. Nevertheless we hesitate to accept as wise the recommendation of five meals followed by two bottles of lager beer (III, 143) as an exemplary dietary in cases of constipation; nor can we agree to the continuance of the old fashioned prescription of fashionable bottled waters, sold at high prices, as essential to good dietotherapy. Why continue the fetish of "brandy diluted with Apollinaris or Vichy" (III, 160) or of "milk diluted with White Rock or Apollinaris" for liver chills (sic) (III, 173)?

The impression must not be conceived that there are no commendable chapters in these volumes. Forty contributors ought to produce something worth while. The parts on bacteria, by Kendall; on foods, by Jaffa; on cookery, by Grindley; the pages on infant feeding; the collected list of hospital diets now in use; the rationing of the Army, as well as the final summary for ready reference, are among the better sections. The indispensable Atwater-Bryant tables of the composition of foods are reprinted.

The justification for an attempt to do better what von Leyden's Handbuch accomplished so well for its generation has been expressed well by Grindley, (II, 51).

> While the physician need not be a cook, he should understand the general methods of preparing foods, and he should know the ingredients of common dishes just as thoroughly as he knows the meaning of galenical terms and the ingredients of tinctures, compound powders, pills, etc. If he is ignorant of the composition and proper preparation of foods, he cannot intelligently supervise the diet of his patients. He should study dietetics exactly as he studies the *Pharmacopoeia* or a work dealing with pharmacognosy or materia medica, not that he need master the art either of cookery or pharmacy, but that he may have an intelligent, general comprehension of both subjects

To assist in this commendable program we need not more, but better books; not massive systems of conglomerate contributions, but compact monographs by competent writers.

Bipp Treatment of War Wounds. By Rutherford Morison, Professor of Surgery, Durham University. Price, $1. Pp. 72, with 9 illustrations. New York: Oxford University Press, 1918.

"This small book has been written by request as a war contribution," says the author, "and in it I have endeavored to avoid two difficulties which I feared. The first concerned an explanation of our results which I knew would plunge me into ventures from which I could not escape unscathed; the second was to avoid any overestimation, from excess of enthusiasm, of the value of this method of wound treatment." To one who reads the book—one of a series of "war primers" —it is evident that the foregoing thoughts of the author have guided him in this abstract of his previous publications. The book is well written and the subject matter is presented clearly but tersely. It deals, of course, with his bismuth iodoform paraffin paste, the use of which has been frequently mentioned in The Journal.

What Men Live By and Other Tales. By Leo Tolstoi. Translated by L. and A. Maude. Boards. Price 25 cents. Pp. 66. Boston: The Stratford Company, 1918.

Stories of the Steppe. By Maxim Gorki. Translated by Henry T. Schnittkind and Isaac Goldberg. Boards. Price 25 cents. Pp. 59. Boston: The Stratford Company, 1918.

These booklets are the most recent issued by the Stratford Company in their twenty-five cent series of classics. The selection has been excellent and the translations are quite worthy of the originals. In these days when Russia is in the limelight an acquaintance, even though not intimate, with Russian classics is almost a necessity to some understanding of the minds of the Russian people.

Medicolegal

Exception as to Physicians in Law Against Prevention of Conception

(People v. Sanger (N. Y.), 118 N. E. R. 637)

The Court of Appeals of New York, in affirming a conviction of the defendant of violating Section 1142 of the Penal Law, holds constitutional that section which, among other things, makes it a misdemeanor for a person to sell or give away or to advertise or offer for sale any instrument or article, drug or medicine for the prevention of conception, or to give information orally, stating when, where or how such an instrument, article or medicine can be purchased or obtained. It was argued that if this law was broad enough to prevent a duly licensed physician from giving advice and help to his married patients in a proper case, it was an unreasonable police regulation, and therefore, unconstitutional. The court says there were two answers to this suggestion. In the first place, the defendant was not a physician, and the rule applies in a criminal as well as a civil case that no one can plead the unconstitutionality of a law except the person affected thereby. Secondly, by Section 1145 of the Penal Law, physicians are excepted from the provisions of this act under circumstances therein mentioned. This section reads:

> An article or instrument, used or applied by physicians lawfully practicing, or by their direction or prescription, for the cure or prevention of disease, is not an article of indecent or immoral nature or use, within this article. The supplying of such articles to such physicians, or by their direction or prescription, is not an offense under this article.

This exception in behalf of physicians does not permit advertisements regarding such matters, nor promiscuous advice to patients irrespective of their condition, but it is broad enough to protect the physician who in good faith gives such help or advice to a married person to cure or prevent disease. "Disease," by Webster's International Dictionary, is defined to be:

> An alteration in the state of the body, or of some of its organs, interrupting or disturbing the performance of the vital functions, and causing or threatening pain and sickness; illness; sickness; disorder.

Evidence and Questions for Jury in an Action for Malpractice

(Swanson v. Hood et ux. (Wash.), 170 Pac. R. 136)

The Supreme Court of Washington reverses for error in the trial of this case a judgment for $3,000 that was entered in favor of the plaintiff, who sued the community composed of defendant Hood and wife, charging malpractice and negligence on the part of the former, who was called to set the plaintiff's arm after the plaintiff had broken both bones of his right forearm while cranking an automobile. The court says, among other things, that there is an obvious distinction between a claim of negligence in the choice of methods of treatment and a charge of negligence in the actual performance of the work of treatment after such is made. As to the first, the charge is refuted as a matter of law by showing that a respectable minority of expert physicians approved of the method selected, thus taking the case from the jury. As to the second, a charge of negligent performance, when there is any evidence tending to show such negligence, the case is for the jury, as in other cases of negligence, whenever on the evidence the minds of reasonable men might differ. The court thinks the case here fell within the latter category. There was evidence that the defendant admitted to the plaintiff, the plaintiff's wife, his mother-in-law and his clerk that he drilled the holes in the bone too large for the screws used in placing the plate, and for that reason wrapped the plate and bone with a wire, and that the wire caused the trouble. There was also evidence that in removing the wire the defendant had used great force, and in removal of the plate, splinters of bone were pulled away. True, this use of excessive force was controverted by the defendant and some of his witnesses, but the conflict made a question for the jury. The defendant himself testified that he and other physicians thereafter advised curettement because a roentgenogram showed a delayed union.

The jury might have inferred from the evidence that the force used in removing the wire was in itself sufficient to destroy any incipient union that might have existed, and thus caused the final failure of the bone to unite. Aside from any expert evidence on the subject, such an inference might reasonably be drawn by any man of common understanding. These things presented questions of negligence pure and simple, and were for the jury. They were not questions relating to the discretion of the physician in his choice between recognized methods of treatment. The evidence would have warranted an instruction categorically taking from the jury the question of negligence in resorting to the Lane plate method and limiting this phase of the question to negligence in the manner in which that method was employed or performed.

The court is further of the opinion that the question of contributory negligence was also one for the jury. Though there was evidence that the plaintiff used his arm in driving his automobile and in working about his store, he himself contradicted these charges. Moreover, there was some evidence that the defendant recommended a moderate use of the arm, and himself at different times took hold of the plaintiff's hand and rotated the forearm. On such a conflict of evidence no court would be warranted in holding the plaintiff guilty of contributory negligence as a matter of law.

When a final bad result of any sort of operation is sought to be accounted for by expert opinion, the question should include everything in evidence which could reasonably contribute to that result. It was error not to include in a hypothetic question touching the infection reference to the physical condition of the patient when there was evidence that at the time he was suffering from a bronchial trouble which might have accounted for the infection of the wound. The evidence being uncontradicted that all of the instruments, materials and accessories used in the operation were surgically clean, an instruction should have been given taking from the jury the question of the defendant's responsibility for the primary infection of the forearm. If the criterions by which a witness measures the defendant's treatment are those of the defendant's own school, the witness is not disqualified merely because he belongs to another school.

Physical Examination of Plaintiffs

(Kennedy v. New Orleans Railway & Light Co. (La.), 77 So. R. 777)

The Supreme Court of Louisiana holds that, in a civil action in damages for personal injuries, the trial judge has no authority to require the plaintiff to submit to a physical examination by experts to be called as witnesses for the defendant. On the other hand, the jury and trial judge cannot reach a legal verdict and judgment against the defendant in such case on an ex parte or one-sided version of injuries of the nature and character of which only the plaintiff and the witnesses selected by the plaintiff are permitted to become informed; for, if the defendants in such cases can be condemned on that basis, they will be at the mercy of the plaintiffs, who have only to complain of injuries not visible outside of their clothing, produce themselves and their own selected witnesses to testify to them, and sit tight, with no fear of possible contradiction. Such a proceeding, however, fails to furnish the principal element in due process of law, namely, a hearing, and ordinarily would be dismissed, since a court cannot well place a value on ex parte testimony.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Denver, Aug. 6-8.
Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Indiana Medical Association, Indianapolis, Sept. 25-27.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
Wyoming State Medical Society, Casper, Aug. 7.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

July, 1918, **16**, No. 1

1 *New Microbody Found in Blood in Case of Myelogenous Leukemia; Efficacy of Arsphenamin. I. Inaba and S. Ohashi, Mukden, South Manchuria.—p. 1.
2 *Macewen's Sign in Poliomyelitis. J. G. Regan, Brooklyn.—p. 13.
3 *Value of Vaccines in Pertussis. L. H. Barenberg, New York.—p. 23.
4 *Use of Pertussis Vaccine Controlled by Complement Fixation Test. E. J. Huenekens, Minneapolis.—p. 30.
5 *Protective Therapy for Varicella; Its Pathogenesis. A. F. Hess and L. J. Unger, New York.—p. 34.
6 Energy Metabolism of an Amaurotic Family Idiot. F. B. Talbot, Boston.—p. 39.
7 Combined Temperature, Weight, Food, Symptom, etc., Record Chart for Pediatric Work. H. J. Gerstenberger an H. O. Ruh, Cleveland.—p. 44.
8 *Is Amount of Calcium Usually Given in Dilutions of Cow's Milk Injurious to Infants? L. E. Holt, A. M. Courtney and H. L. Fales, New York.—p. 52.

1. **Microbody in Leukemia.**—A case is reported by Inaba and Ohashi of acute myeloblastic leukemia accompanied by chloroma-like tumor growths in the skull, occurring in the course of the disease. Arsphenamin was used in three injections, which resulted in an astonishingly good effect in causing the cessation of all of the leukemic symptoms, with the exception of the gradual enlargement of the tumors. The improvement in the blood findings was very remarkable. In consequence of the arsphenamin treatment, a great number of peculiar microbodies made their appearance in the blood. The nature of these bodies was not determined, but it is considered justifiable to regard them as a new variety of parasitic micro-organism of a certain pathogenic significance in this case of leukemia.

2. **Macewen's Sign in Poliomyelitis.**—During the 1916 epidemic of poliomyelitis Regan tested the value of this sign in 1,798 cases. It was present in all cases seen in the preparalytic stage of the malady, and was usually of a marked degree. It was also extremely frequent in the early paralytic period of the disease, being present to some extent in over 80 per cent. of the patients, and in some cases, especially of the respiratory type, it persisted for as long as from three to eight weeks after the onset. The degree of the positive sign was usually proportionate to the pressure and quantity of spinal fluid removed on lumbar puncture. If Macewen's sign was marked, the fluid was usually under marked pressure, spurting from the needle as soon as the stilet was withdrawn, while if it was slight the fluid would merely flow away rapidly. The relation between the positive sign and the quantity of fluid removed was more easily proved. It was not uncommon to see distinct evidence of pain exhibited on percussion of the skull. Thus, if the examination was carried on while a child was sleeping, he would frequently awaken and begin to cry; or in a stuperous case, the percussion would often arouse the patient to such an extent that he would show evident disapproval of its further use. In children old enough to talk, it was common to have them say that their head hurt and ask to be let alone.

3. **Vaccines in Pertussis.**—As a result of the use of vaccines in an epidemic of pertussis we are led to about the same conclusions which Hess reached in 1914 following a similar therapeutic test. It would seem almost certain Barenberg concludes that pertussis vaccine, given even in large dosage, not only has no curative effect, but does not tend to lessen the severity of the disease. As regards the prophylactic value of pertussis vaccine, the case is different. In both the former epidemic and in this one the percentage of vaccinated children who developed the disease was considerably less than of those who were not vaccinated.

4. **Complement Fixation Control of Pertussis Vaccine.**—Huenekens claims that pertussis vaccine from 2 to 3 months old, employed in very large doses, 1 billion and over, immunizes in only 12.5 per cent. of cases. Two to 4 weeks old vaccine confers immunity in from 25 to 75 per cent. of cases.

Freshly prepared vaccine, employed in the same dosage, shows evidence of antibody formation in 94 per cent. of cases. When used in still larger doses, 1, 1½ and 2 billion, 100 per cent. positive reactions are obtained. The antibodies are demonstrable within one week after the last injection. Huenckens believes that the following conclusions, therefore, seem warranted: Pertussis vaccine should be employed only when freshly prepared and without preservative. By fresh vaccine is meant a vaccine less than 1 week old. The most effective dosage is 1 billion, 1½ billion and 2 billion, given on alternate days, for three doses. It is most effective as a prophylactic, but should be of great value in the early catarrhal stage of pertussis. In doubtful cases of pertussis the vaccine should be administered before an exact diagnosis can be made, especially during an epidemic or where there is a history of previous exposure.

5. **Therapy for Varicella.**—Hess and Unger injected the contents of the vesicles intravenously. The technic was as follows: In each instance only vesicles, and not pustules, were made use of; the surfaces were very gently washed with sterile salt solution and the contents allowed to ascend into capillary tubes. As much as possible of the clear fluid was obtained and was immediately mixed with sterile normal salt solution. This diluted virus was diluted still further with salt solution before it was injected. The dosage was entirely empiric, three-quarters inch, as measured in the capillary tube, was used in each instance. In all, thirty-eight children, about 3 or 4 years of age, were vaccinated intravenously after this method. None of the children developed any local or general signs, or any eruption suggestive of varicella. They were all, in the course of the epidemic, unavoidably in contract with one or more cases of chickenpox, but in spite of this proximity only one developed the disease, this one thirty-six days after the date of inoculation. It is evident, therefore, that by means of these intravenous vaccinations almost absolute immunity was brought about, and no symptoms of the disease.

8. **Calcium of Cow's Milk.**—The authors are of the opinion that it is yet to be demonstrated that infants fed on simple dilutions of cow's milk do not retain an adequate amount of fat, when the stools are formed or semiformed and soapy; nor do they think that a high calcium intake necessarily causes a large fat loss in the feces; while a great reduction of the calcium in the food of infants may be attended with considerable risk.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

July, 1918, **78**, No. 1

9 Overlapping of Fascia of Posterior Vaginal Wall for Cure of Rectocele. D. Bissell, New York.—p. 1.
10 Case of Paragenital Teratoma. L. W. Strong, New York.—p. 5.
11 Nonpuerperal Pelvic Infection. E. J. Ill, Newark, N. J.—p. 11.
12 *Mortality among Women from Causes Incidental to Childbearing. L. I. Dublin, New York.—p. 20.
13 Treatment of Benign Tumors of Breast. J. B. Deaver, Philadelphia.—p. 37.
14 Prevention of Mastitis. R. C. Norris, Philadelphia.—p. 46.
15 Treatment of Mastitis. W. R. Nicholson, Philadelphia.—p. 52.
16 Anomalies of Mammary Secretion. T. S. Westcott, Philadelphia.—p. 55.
17 Case of Papillary Cystadenoma of Ovary; without Recurrence After Seven Years. J. Corcia, New York.—p. 62.
18 Hospital Standardization and Its Application to Organization of Special Hospital. G. G. Ward, Jr., New York.—p. 65.
19 Papillomatous Cysts of Ovary; Report of Eleven Cases. L. S. Schwartz, Brooklyn.—p. 79.
20 Inventory of Gynecologic Clinics. F. C. Holden, Brooklyn.—p. 93.
21 Most Efficient Means of Preventing Infant Mortality. W. L. Putnam, Boston.—p. 103.

12. **Mortality from Causes Incidental to Childbearing.**—In this investigation there were recorded in all 10,056 deaths from the diseases and conditions incidental to childbirth in the age period 15 to 44 years. This covers the six-year period from 1911 to 1916, inclusive. These deaths, when related to the 14,694,260 women exposed, correspond to a death rate of 68.4 per hundred thousand women at these ages. Of the total deaths, 8,288 occurred among white females and 1,768 among colored females; the rates per hundred thousand for the two races, being 66.1 to 82.3 for the white and colored women, respectively. It is thus shown at the outset that colored females suffer much more seriously than do white women from the diseases and conditions incidental to childbearing. The 10,056 deaths were due to a considerable number of diseases and conditions complicating or characteristic of the puerperal state. The most important of these is septicemia, which alone was responsible for 4,321 deaths, or 43 per cent. of the total. This condition was followed in numerical order, by albuminuria and convulsions with 2,654 deaths, or 26.4 per cent. of the total. Together, these two definite conditions account for 69.4 per cent. of the puerperal cases, but it is realized that the actual proportion is even higher. Many deaths from septicemia and albuminuria are unfortunately still reported under the disguise of one or another title which results in their assignment to other of the puerperal conditions and in fact to other conditions not puerperal at all.

American Journal of Ophthalmology, Chicago

July, 1918, **1**, No. 7

22 War and Night Blindness. M. Danis, Brussels, Belgium.—p. 465.
23 Whip Cracker Injury of Eye; Report of Three Cases. E. B. Heckel, Pittsburgh.—p. 468.
24 Concomitant Movements, Especially of Upper Eyelid wth Suction. C. Zimmermann, Milwaukee, Wis.—p. 473.
25 Etiologic Factors in Epidemic of Acute Conjunctivitis at Camp Sherman. W. E. Kershner.—p. 480.
26 Defects in Education for Ophthalmic Practice. E. Jackson, Denver.—p. 482.
27 Computation of Compensation for Ocular Injuries. H. S. Gradle, Camp Grant, Ill.—p. 487.
28 Etiologic Factor in Trachoma. O. C. Netto, Brazil.—p. 493.

American Journal of Roentgenology, New York

April, 1918, **5**, No. 4

29 Pyeloscopy. W. F. Manges, Philadelphia.—p. 165.
30. Medicolegal Status of Roentgenologist. A. Soiland, Los Angeles.—p. 173.
31 Opaque Roentgen Ray Meals and Enemas. D. Spangler, Kansas City, Mo.—p. 175.
32 Roentgenologic Examination of Mediastinum. H. J. Walton, Baltimore.—p. 181.
33 Roentgen Differentiation of Cavities, Retractions and Partial Pneumothoraces in Chest. J. M. Steiner, New York.—p. 185.
34 Importance of Position of Upper Arm in Detection of Roentgenologic Shadows in Region of Shoulder Joint. F. W. George, Worcester.—p. 187.
35 Lead Glass and Lead Rubber—U. S. Bureau of Standards. E. B. Rosa, Washington, D. C.—p. 188.
36 Some Unusual Stomach Cases. A. M. Cole, Indianapolis.—p. 189.
37 Periosteal Sarcoma in Dog. W. H. Stewart, New York—p. 192.
38 Method of Obtaining an Accurate Lateral Roentgenogram of Shoulder Joint. W. S. Lawrence, Memphis, Tenn.—p. 193.
39 Roentgenograms of Myxoma of Femur. A. Cotton and S. McCleary, Baltimore.—p. 195.
40 Congenital Case of Syphilis of Stomach. G. Von Poswik, Scranton, Pa.—p. 199.

May, 1918, **5**, No. 5

41 Roentgenoscopy at Front. R. Desplats, France.—p. 222.
42 Localization of Foreign Bodies. J. S. Shearer, Ithaca.—p. 229.
43 Adjuncts to Roentgenotherapy in Treatment of Malignant Disease. G. E. Pfahler, Philadelphia.—p. 249.
44 Differential Diagnosis of Bone Tumors. F. H. Baetjer, Baltimore.—p. 260.

Archives of Ophthalmology, New Rochelle, N. Y.

July, **47**, No. 4

45 Value of Blood Count in Diagnosis of Sympathetic Ophthalmia. S. R. Gifford.—p. 327.
46 Case of Bilateral Papilledema Due to Empyema of Sphenoid and Ethmoid Sinuses. Operation and Recovery. G. H. Bell, New York.—p. 344.
47 Intimate Relation Between Ear and Eye as Shown by Bárány Tests. H. M. Langdon and I. H. Jones, Philadelphia.—p. 348.
48 Some Phases of Vestibular Nerve Problem. J. Dunn, Richmond, Va.—p. 354.
49 Light Pupillary Reflex; Case of Unilateral Argyll Robertson Pupil, with Consensual Reaction in Both Eyes. A. Lutz, Havana,—p. 370.
50 Influence of Function on Structure of Eye. E. Uhlenhuth, New York.—p. 401.
51 Operative Treatment of Traumatic Coloboma of Lid. L. v. Blaskovics, Budapest.—p. 404.
52 Opticociliary Neurotomy, Resection of Optic Nerve, Substitute for Enucleation. A. H. Pagenstecher, Wiesbaden.—p. 409.

Boston Medical and Surgical Journal

July 11, 1918, **179**, No. 2

53 Extremes in Infant Feeding, Present Tendencies. F. B. Talbot, Boston.—p. 35.
54 Mentally Defective Criminal. A. T. Baker, East View, N. Y.—p. 38.
55 Treatment of Colds. D. C. Dennett, Winchester.—p. 41.

California State Journal of Medicine, San Francisco

July, 1918, **16**, No. 7

56 Metabolism in Diabetes, Nephritis and Cholecystitis. L. M. Breed, Pasadena.—p. 327.
57 *Autogenous Colon Vaccines in Eczema. J. A. Jackson and R. J. Pickard, San Diego.—p. 330.
58 Granuloma of Larynx. J. M. Brown, Los Angeles.—p. 332.
59 Xanthoma Tuberosum Multiplex. A. Davidson, Los Angeles. —p. 333.
60 Vincent's Angina; Report of Case. J. M. King, Los Angeles, —p. 334.
61 Neurologic Aspect of Brain Tumors. W. F. Schaller, San Francisco.—p. 336.
62 Abscess of Liver in Young Infant. A. J. Scott, Jr., Los Angeles. —p. 337.
63 Cause and Prevention of Postoperative Gas Pains. W. C. Alvarez, San Francisco.—p. 338.

57. **Autogenous Colon Vaccines in Eczema.**—In twelve cases of eczema with indicanuria *B. coli* was isolated from the feces and a vaccine made. This vaccine was injected two or three times a week. Nine patients were cured, two showed no result from vaccines. Twenty other patients with traces of indican, or no indican, showed improvement and cure attributable to the vaccine in three patients, and slight benefit in one. In all the patients a simple diet was prescribed, elimination was watched, and the usual mild, local applications made, except in four cases in which the vaccine was used alone. Jackson and Pickard believe that this is a new group of eczema cases, in which there is a pervertd metabolism of the individual's colon bacilli, possibly a mild inflammation (an eczema) of the bowel itself, with toxemia, and eczema in the susceptible skin. Through the use of the specific vaccine the individual immunity is reestablished, the colon bacilli subside to their ordinary habits of growth, losing their acquired virulence, and the symptoms disappear.

Canadian Medical Association Journal, Toronto

July, 1918, **8**, No. 7

64. *Significance of Heart Murmurs That May be Found on Examination of Candidates for Military Service. L. F. Barker, Baltimore.—p. 577.
65 Duodenojejunostomy; Its Indications and Technic. J. McKenty, Winnipeg.—p. 586.
66 Diagnosis of Inflammations of Uveal Tract of Systemic Origin. W. G. M. Byers, Montreal.—p. 593.
67 Ozena. D. J. G. Wishart, Toronto.—p. 606.
68 Vesical Symptoms in Renal Disease. D. W. MacKenzie.—p. 611.
69 Abdominal Surgery as Factor in Treatment of Pulmonary Tuberculosis. N. H. Beal, London, Ont.—p. 617.
70 Report of Special Clinic for Treatment of Syphilis, Toronto General Hospital. E. J. Trow, Toronto.—p. 622.
71 Treatment of Syphilis, Report of Special Clinic for Syphilis, Toronto General Hospital. W. T. Williams, Toronto.—p. 627.

64. **Heart Murmurs in Candidates for Military Service.**—Barker's experience at a Medical Advisory Board during the past three months, where with others he has examined the hearts of 2,500 drafted men between the ages of 21 and 31, indicates: 1. That many organic murmurs (diastolic murmur of aortic insufficiency, presystolic murmur and snapping first sound of mitral stenosis) are often entirely overlooked by examiners in local boards, for they are not infrequently detected in men referred to the Advisory Board for defects other than those of the cardiovascular system. 2. That many extracardiac (cardiorespiratory) murmurs, and accidental intracardiac murmurs, are suspected by medical examiners to be murmurs of serious import. 3. That the hearts of some of the men presenting organic murmurs are better prepared to stand exertion than are the hearts of some men presenting no murmurs. 4. That good response to the exercise test by no means rules out the existence of organic disease of the valves of the heart. 5. That many men with organic disease of the valves of the heart need not be unconditionally rejected, though according to present regulations they must be, for many of them are entirely capable of undertaking special service not involving severe exertion, and some of them could, without harm, even be given duties requiring considerable bodily exertion. Experience in the armies in Europe would indicate that mild stenotic lesions stand strain better than lesions causing valvular insufficiency. The lesions of "barrage" are less serious than the lesions of "fuite." That, on the whole, while the study of cardiac murmurs is of great importance in estimating the fitness of a candidate for military service, still greater importance attaches to the study of the condition of the cardiac muscle and to the estimation of its ability to bear strain.

Colorado Medicine, Denver

July, 1918, **15**, No. 7

72. Acute Cholecystitis. Z. H. McClanahan, Colorado Springs. —p. 162.
73 Cholecystectomy vs. Cholecystostomy. F. N. Cochems and A. J. Bender, Salida.—p. 164.
74 Function and Fate of Bone Graft. H. G. Wetherill, Denver. —p. 170.
75 Eclampsia. P. A. Murphy, Denver.—p. 175.
76 Congenital Stenosis of Esophagus; Report of Case. C. T. Knuckey, Lamar.—p. 177.

Delaware State Medical Journal, Wilmington

April-June, 1918, **9**, No. 2

77 Unusual Surgical Conditions. J. Palmer, Wilmington.—p. 2.
78 Pneumonia. J. W. Bastian, Wilmington.—p. 8.
79 Tuberculosis Situation. F. H. Edsall, Wilmington.—p. 14.
80 Relation of Tonsils to General Disease, and Sluder Method of Extirpation. E. R. Mayerberg, Wilmington.—p. 18.

Florida Medical Association Journal, Jacksonville

May, 1918, **4**, No. 11

81 Treatment of Syphilis of Central Nervous System. H. M. Smith, Chattahoochee.—p. 319.
82 Colony Care for Epileptic and Feebleminded of Florida. W. M. Bevis, Chattahoochee.—p. 322.
83 Relation of Medical Profession to Each Other and to Public. R. R. Kime, Lakeland.—p. 325.
84 Uvula. U. S. Bird, Tampa.—p. 331.

Illinois Medical Journal, Chicago

July, 1918, **34**, No. 1

85 Oration on Surgery. W. O. Sherman, Pittsburgh.—p. 4.
86 Work of Grievance Committee. F. L. Glenn, Chicago.—p. 10.
87 Roentgen Examination of Kidney Tumors. P. Eisen, Chicago. —p. 14.
88 Osteosarcoma of Femur with Unusual Roentgen Findings. M. Reichmann, Chicago.—p. 16.
89 Strictures of Urethra. C. H. Solomon, Chicago.—p. 18.

Journal of Experimental Medicine, Baltimore

July, 1918, **38**, No. 1

90 *Lymphocyte in Natural and Induced Resistance to Transplanted Cancer. Effect of Roentgen Rays on Artificially Induced Immunity. J. B. Murphy and H. D. Taylor, New York.—p. 1.
91 Passage of Neutralizing Substance from Blood into Cerebrospinal Fluid in Actively Immunized Monkeys. S. Flexner and H. L. Amoss, New York.—p. 11.
92 *Results of Prophylactic Inoculation against Pneumococcus in Twelve Thousand Five Hundred and Nineteen Men. R. L. Cecil and J. H. Austin, New York.—p. 19.
93 *Homohemolytic System for Serum Diagnosis of Syphilis. H. Noguchi, New York.—p. 43.
94 *Experimental Study of Vaccination against Bacilli Dysenteriae. P. K. Olitsky, New York.—p. 69.
95 Coccidiosis in Young Calves. T. Smith and H. W. Graybill. Princeton, N. J.—p. 89.

90. **Resistance to Transplanted Cancer.**—According to Murphy and Taylor, mice artificially immunized against a transplantable carcinoma, inoculated and proved immune, may be again rendered susceptible to the same tumor by exposure to the roentgen rays. The immune animals which have not been treated with the roentgen rays preserve, to a large degree, their resistance to a second inoculation of the tumor in question.

92. **Prophylactic Inoculation Against Pneumococcus.**—From a study of the agglutinins and protective power of the serum of forty-two persons vaccinated against the pneumococcus, Types I, II and III, it is demonstrated by Cecil and Austin that a definite immune response has been secured to Types I and II by the dose of vaccine employed. Little evidence of response to Type III can be demonstrated by these methods, but this is of less significance in that in animals it is relatively difficult to secure antibodies against this strain in the serum, even though a considerable degree of active immunity may have been produced in the vaccinated animal. The degree of response to the vaccination appears to be dependent on the total dosage of each type of pneumococcus administered. While some response may be elicited by 2½ billion cocci of each type, a much more constant and greater response follows

13 billion. In subcutaneous administration the manner in which the total dosage is divided, whether given in a single large dose, in seven small daily doses, or in three to five moderate doses at three to seven days intervals, seems to have little influence on the degree of immune response, provided the total dosage is the same. The local and general toxic reaction varies greatly in different persons. The smaller the individual doses, the fewer are the severe reactions. This makes it desirable to divide the total dosage into as many inoculations as circumstances make practicable.

At Camp Upton 12,519 men have been vaccinated against Pneumococcus Types I, II and III. Three or four doses were given at intervals of five to seven days with a total dosage of 6 to 9 billion of Types I and II, and 4½ to 6 billion of Type III. During the ten weeks that elapsed since the vaccination, no cases of pneumonia of these three types occurred among the men who had received two or more injections of vaccine. In a control of approximately 20,000 men there were twenty-six cases of Pneumococus Types I, II and III pneumonias during the same period. The incidence of Pneumococcus Type IV pneumonia and streptococcus pneumonia was much less among the vaccinated troops than among the unvaccinated. No explanation has been advanced for this difference. Small sterile infiltrations disappearing spontaneously occasionally follow the injection of large doses of pneumococcus vaccine and appear to be an expression of cutaneous hypersusceptibility. The persons who develop these lesions exhibit local reactions to each dose of vaccine. They also give abnormally marked reactions to intradermal injections of pneumotoxin. They do not, however, exhibit anything notable in the agglutinative or protective powers of their serums after vaccination. Whereas the immune response is characteristically specific for the type of pneumococcus, this reaction is not specific for any type. The authors have found no evidence that Type III is more prone to elicit these severe local reactions than are Types I and II. Prophylactic vaccination against pneumococcus of Types I, II and III is practical and apparently gives protection against pneumonia produced by these types. It remains to be determined how long this immunity persists.

93. **Serum Diagnosis of Syphilis.**—Noguchi has examined 1,331 specimens of blood and fifty-two cerebrospinal fluids. Of 1,118 specimens of serums from these sources 517 gave a positive and 601 a negative reaction, the results conforming to those reported by the serologic departments of the various hospitals. Of 132 specimens from psychiatric cases, fifty-four were from general paralysis cases, and all except two gave a strongly positive reaction. Among other psychoses, including seventy-five cases of dementia praecox, three of alcoholic psychosis, three of imbecility, three of senile psychosis, six of arteriosclerosis, one of manic depressive insanity, and one paranoic condition, there were only two positive reactions, these occurring among the dementia praecox cases. The reactions with eighty-one inactivated serums agreed with those obtained by others with the same material. Twenty cerebrospinal fluids from cases of general paralysis gave a strongly positive reaction, while thirty-two specimens from other nonsyphilitic cases showed a negative reaction. The statement will perhaps bear repeating that of 1,250 fresh human serums complement was deficient in ninety-three specimens, which had to be examined either by means of additional amboceptor or by supplying active human complement from fresh negative serums. This special adjustment with fresh serums is one which demands particular attention on the part of serologists adopting the method.

94. **Vaccination Against Bacilli Dysenteriae.**—The purpose of Olitsky's investigation was to determine a practical method of vaccination against bacillary dysentery. His study seems to emphasize the advantages of a bland oily medium for suspending dysentery bacilli for purposes of active immunization or vaccination. The experiments on animals and a small number of tests on man indicate that the single injection of an almond oil suspension of the Shiga and Flexner groups of dysentery bacilli suffices to afford protection as indicated by the appearance in the blood of definite specific antibodies for each group of the bacilli, and by the protection of animals from otherwise lethal doses of the living organisms or their toxic products. Olitsky says that the extent to which vaccination should be applied to man will depend on circumstances and conditions still to be defined, but the method appears to be wholly practicable.

Journal of Infectious Diseases, Chicago

June, 1918. **22,** No. 6

96 *Meningococcus Carriers and Bacteriology of Epidemic Meningitis. G. Mathers and R. D. Herrold, Chicago.—p. 523.
97 *Thermostabile and So-Called Thermolabile Hemolysinis. H. Sherman, Lawrence, Kans.—p. 534.
98 *Attenuation of Hog Cholera Virus and Its Effect on Normal Hogs. C. L. McArthur, Fayetteville, Ark.—p. 541.
99 *Cultures of Leptothrix from Case of Parinaud's Conjunctivitis. W. B. Wherry and V. Ray, Cincinnati.—p. 554.
100 *Action of Glycerol on Micrococci from Epidemic Poliomyeltis. G. Mathers and G. H. Weaver, Chicago.—p. 559.
101 *Production of Precipitins by Fowl. L. Hektoen, Chicago.—p. 561.
102 Streptothrix Interproximalis. N. Sp. An Obligate Micro-Aerophile from Human Mouth. E. A. Fennel, Cincinnati.—p. 567.
103 *Pneumococcidal Power of Rabbit Serum After Administration of Ethylhydrocuprein Hydrochlorid, Quinin and Urea Hydrochlorid, and Other Cinchona Derivatives. C. Weiss, Philadelphia.—p. 573.
104 Studies on B. Abortus and Related Bacteria. Pathogenicity of B. Lipolyticus for Guinea-Pigs. A. C. Evans, Washington, D. C.—p. 576.
105 Id.: Comparison of B. Abortus with B. Bronchisepticus and with Organism which Causes Malta Fever. A. C. Evans, Washington, D. C.—p. 580.
106 *Hypersensitiveness and Asthma, Especially in Relation to Emanations from Horses. A. de Besche, Christiania, Norway.—p. 594.

96. **Meningococcus Carriers and Bacteriology of Epidemic Meningitis.**—During the summer and fall of 1917 an extensive bacteriologic study was made by Mathers and Herrold of epidemic meningitis in one of the large military camps. The meningococcus carriers in the infected organizations were identified and isolated. For the cultures plain blood agar was found to be satisfactory and the material for culture was obtained from the nasopharynx by means of a simple uncovered wire swab. It was found that 3 to 6 per cent. of the men examined were meningococcus carriers. The majority of these carriers, however, were of the temporary type; only 1.2 per cent. of the total number of suspects examined proved to be chronic carriers. Chronic meningococcus carriers, as distinguished from the temporary type, often harbor great numbers of meningococci in the secretions of the nose and throat. The number of carriers was found to be high among those coming in contact with meningitis cases. In a study of the biologic reactions of 150 strains of meningococci from different sources two large biologic groups were differentiated by means of macroscopic agglutination tests using monovalent serums. The agglutination reactions were in most instances definite and specific but a number of atypical and inagglutinable strains were met with in each group. The atypical strains, however, did not differ enough from the other members of the group to warrant different classification as determined by agglutination. The classification of the inagglutinable strains was accomplished by means of agglutination with monovalent serums prepared from these strains; these serums yielded specific reactions with organisms of one or the other main type. The biologic type of meningococcus predominant in the camp epidemic was identical with the type prevailing among the chronic carriers, but different from the type of meningococcus causing the majority of the sporadic cases of cerebrospinal fever in Chicago. Also the type of meningococcus found in the cases and in corresponding immediate contacts was in every instance the same. These facts suggest that there is a close relationship between cases of epidemic meningitis and meningococcus carriers.

97. **Thermostabile and Thermolabile Hemolysis.**—As the result of his investigations, Sherman suggests that all of those hemolysins which can be titrated direct be called "obvious" hemolysins, and that the term "masked" be applied to those "obvious" hemolysins which are not detectable by direct titration after inactivation. As there are no thermolabile hemolysins, there can be no "evolution of the antibody" from a thermolabile complement through a thermolabile hemolysin to a thermostabile hemolysin. Sherman found that the immune hemolysin first formed on injection of the antigen is thermostabile.

98. **Attenuation of Hog Cholera Virus and Effect on Normal Hogs.**—The results of McArthur's experiments would indicate that hog cholera virus can be attenuated to a certain extent by heating, but this heated material is not suitable as vaccine, because in many cases it is apt to cause the disease.

99. **Leptothrix from Parinaud's Conjunctivitis.**—Pus aspirated from the preauricular gland of a case of Parinaud's conjunctivitis and injected subcutaneously in a white mouse, produced an infection, after an incubation period of from four to five days, characterized by purulent conjunctivitis and death. From muscular abscesses found postmortem, a leptothrix was isolated which grew only on slants of egg yolk incubated under partial tension and anaerobic condition. Pus from the mouse injected into a second white mouse reproduced the symptoms but resulted in recovery. The leptothrix isolated was nonpathogenic for white rats and a wild mouse. White mice were not inoculated with the pure culture. Later in the course of the human case a similar organism was isolated on egg yolk directly from the preauricular gland. Wherry and Ray are rather of the opinion that the organism grown by them is identical with that found in sections by Verhoeff. The use of a guinea-pig and a rabbit seemed to rule out the presence of the tubercle bacillus.

100. **Action of Glycerol on Micrococci from Epidemic Poliomyelitis.**—Mathers and Weaver found that poliomyelitic cocci as well as pneumococci, hemolytic streptococci and *Streptococcus viridans* when suspended in 50 per cent. glycerol remain viable for fifteen to thirty days. In the presence of a suitable culture medium such as blood agar, however, cultures of these organisms may remain alive for ninety days. In two instances poliomyelitic cocci were obtained in culture from the glycerolated nervous system of cases of poliomyelitis after a period of fifteen months. The authors regard it as probable then that the micrococci associated with poliomyelitis similar to the virus of the disease, are highly resistant to the bactericidal action of glycerol in 50 per cent. solution. Ordinary streptococci and pneumococci are also markedly resistant to this germicide.

101. **Production of Precipitins by Fowl.**—According to Hektoen the domestic fowl is a prompt, reliable and liberal producer of precipitins, more so than the rabbit. A single intraperitoneal injection of 20 c.c. of defibrinated blood or serum in most cases in ten to twelve days yields a precipitating serum of sufficient strength and specificity for practical purposes. On account of an unwelcome tendency to give nonspecific reactions, especially on rapid transfer from low to higher temperatures, great care must be exercised in all tests with fowl antiserum, and 1.8 per cent. salt solution should be used in making all mixtures and dilutions. In case of necessity, Hektoen says, the fowl can be used as a substitute for the rabbit for the production of precipitating serums in general, as has been done by Sutherland in India. Wherever rabbit antiserum is available, however, it perhaps will be best in forensic work to limit the use of fowl antiserum for the present to cases which demand a definite answer to the question whether a given blood spot is rabbit blood. According to Hektoen in two cases it proved easy by means of antirabbit fowl serum to demonstrate that certain blood spots, in one case on a newspaper and in the other on shoes, were due to rabbit blood.

103. **Pneumococcidal Power of Rabbit Serum After Injection of Cinchona Derivatives.**—No pneumococcidal action of rabbit serum could be demonstrated after a single large tolerated dose, after a single fatal dose, after repeated injections of tolerated doses either by oral or by intravenous routes of various cinchona derivatives including ethylhydrocuprein hydrochlorid, quinin and urea hydrochlorid, quinin dihydrobromid, and quinin chlorohydrosulphate. A review of the literature indicates that the liver of the rabbit has a high destructive action on quinin alkaloids and that both leukocytes and red blood cells (but not serum) have a marked affinity for cinchona compounds.

106. **Hypersensitiveness and Asthma.**—De Besche examined eighteen cases of ordinary bronchial asthma without being able to discover any relation to horses or to find any exciting cause.

Medical Record, New York

July 13, 1918, **94**, No. 2

107 Soldier and Tuberculosis. E. O. Otis, Boston.—p. 47.
108 Analysis of Weak Foot with Reference to Precision in Use of Descriptive Terms in Teaching. R. Whitman, New York.—p. 49.
109 Feeding in Marasmus. M. S. Reuben, New York.—p. 51.
110 Results and Interpretation of Wassermann Test. C. A. Johnson, Los Angeles.—p. 59.
111 Stammering. E. Tompkins, Pasadena, Calif.—p. 62.
112 Transfusion of Blood by Citrate Method. A. Zingher. New York.—p. 64.
113 *Death from Volvulus Caused by Roundworms. V. G. Heiser, New York.—p. 65.

113. **Death from Volvulus Caused by Roundworms.**—A child 4 years of age was given 6 minims of oil of chenopodium. Two days after the administration of the chenopodium the child was reported very ill. There was marked distention of the abdomen, with severe pains, frequent vomiting, and the bowels had not moved since the day treatment was given. On postmortem a mass of roundworms the size of a man's fist was found blocking the bowel; the intestines below the mass were so twisted as to cause complete obstruction; there was local peritonitis in the vicinity of the obstruction, and more than 300 roundworms were found in the intestinal canal.

Military Surgeon, Washington, D. C.

July, 1918, **43**, No. 1

114 Prevention and Treatment of Delayed and Faulty Union of Fractures. W. A. Clark.—p. 1.
115 *Examination of Men of First Draft Referred to Cardiovascular Board, 89th Division, Camp Funston, Kan. J. L. Benjamin.—p. 12.
116 *Communicable Disease at Camp Funston and Medical Officers' Training Camp, Fort Riley, Kan., Oct. 15, 1917, to Jan. 15, 1918. H. E. Eggers and E. H. Kerr.—p. 17.
117 *Report of Physical Examination of Twenty Thousand Volunteers. C. L. Cole, E. W. Loomis and E. A. Campbell.—p. 45.

115. **Examination of Heart of Drafted Men.**—The new system of examining recruits as conducted at Camp Funston, at the present time Benjamin describes as follows: In the first place, the men are immediately assigned en masse to one depot brigade. Immediately on arrival they are all examined in this organization, where also meet the special boards. The men are stripped of their civilian clothes, given their initial bath, and proceed immediately to undergo their first general examination, where they are also vaccinated, inoculated against typhoid, their finger-prints taken, and all examined for tuberculosis. This latter board immediately refers the cardiac cases to the special examiners.

In the cardiac room the system is as follows: One examiner and one corps man are in attendance. A record is kept of each man. Six men can conveniently be examined at one time. Various numbers are written on the chest by the examiner to be copied by the corps man, thus eliminating the necessity of calling off data. The interpretation of the numbers is as follows: A number at the top of the sternum represents the dorsal pulse rate. A number under the left shoulder is the serial number of the recruit, one to the right of the sternum is the measurement of the right border of the heart from midsternum and one to the left is the number of centimeters the left cardiac border extends from the midsternum. Two numbers are written beneath the nipple to indicate the space where the apical pulsation is felt with greatest force and its location inside or outside the nipple line. After completion of this data the patient is directed to lie down, when the dorsal pulse rate and blood pressure are taken. After this he is directed to hop 100 times on one foot (the type of hop being first demonstrated), after which the pulse rate is taken by listening with the stethoscope. The largest number of recruits examined in this way in one day was forty-five.

Concerning the lesions found during the examinations, of special interest is the numerical relation of mitral stenosis to mitral insufficiency. During the earlier months of the examination very few cases of mitral stenosis were reported. It was only after the tuberculosis board began its work that these cases started to roll in. They were referred, first, because of symptoms of cough, dyspnea or hemoptysis, for which they were sent for examination of their lungs because of suspected phthisis, or they were picked up in the course of the chest examination, hitherto unsuspected. The members of the tuberculosis board had been previously instructed as to just what cardiac signs to look for in the course of their work. The criteria of diagnosis as explained to them were: (1) presystolic thrill, (2) snapping first sound at the apex, (3) presystolic roll at the mitral area, (4) loud pulmonic second sound.

Doubtful cases were sent back to their organizations with a note requesting that the soldier be watched for the ensuing four weeks and at the expiration of which time to be returned with a note stating how he endured Regular Army duties. With the exception of a very few, such persons proved to be very undesirable soldiers. The cause, so far as was possible to determine, seemed to have been previous attacks of rheumatism. Insufficiency of the aortic valves was relatively frequent. With the exception of five cases, rheumatism seemed to have been the etiologic factor. Wassermann tests were made of all the persons in this group, and in only five were positive results obtained. Curiously enough, persons who had this lesion stood Army duties peculiarly well, as in only a very few instances were the lesions found except in the routine examination, symptoms having been wholly lacking. As regards aortic stenosis, only two positive cases were found by Benjamin.

Fifteen cases of undisputed hyperthyroidism were diagnosed. The irregularities were rather conspicuous by their almost entire absence. By the aid of roentgen ray the diagnosis of two cases of aneurysm was confirmed. In one instance the sacculation occurred in the middle of the arch, in the other in the beginning of the descending branch of the aorta. It is Benjaminin's opinion that the close association of cardiovascular and tuberculosis examiners is a most desirable one. There is no doubting the fact that undesirable soldiers are thus eliminated early in their training. Of special interest is the observation that practically no case of "disordered action on the heart," so vividly described by members of the research committee of the Hampstead Hospital, England, has been found.

116. **Communicable Disease at Camps.**—On the basis of study and experience, the following recommendations are offered by Eggers and Kerr: (1) That the work of the department be given to as large a percentage as possible to men in line for regimental assignments. (2) That the present scheme of cooperation with the Department of Sanitation be continued. (3) That certain men be trained in all features of the work, so as to be available as epidemiologists. (4) That the attention of the Surgeon-General be attracted to this work, and the following suggestions made: (*a*) That one or more assistant epidemiologists be assigned to each camp to instruct the regimental men in inspection for communicable diseases. (*b*) That specially trained men to take charge of isolation and detention camps are advisable. (*c*) That flying squadrons to take over meningitis cultures be formed, or, at any rate, be listed and held where they will be available, these squadrons to be made up of a field chief and assistants to handle the cultures and a laboratory chief and assistants to handle the laboratory work. (*d*) With the organization and the size and character of the camp, men can be trained for this work, and the authors feel that this is advisable.

117. **Physical Examination of Volunteers.**—According to Cole and his associates practically 50 per cent. of all candidates volunteering for military service—20,000 men examined—have physical defects which incapacitate for military service entirely or reduce efficiency. The present method of examination requires acceptance of many defective men or rejection of many men who can be made capable of performing military service. Establishment of refitting stations with properly organized staff for medical treatment and military drill would afford time for observation of men before discharge or afford an opportunity for treatment of curable defects. The number of men available for military service would be increased. The military efficiency of the forces would be increased through bringing all men to a higher physical standard. More efficient intensive training could be given at training camps through reducing the number of men admitted to camp hospitals for physical defects existing at the time of enlistment. Many physical defects exist in young men of military age which could have been corrected, by proper inspection and physical development, while the persons were schoolchildren, if provision had been made for such procedure in the public schools.

New Jersey Medical Society Journal, Orange

July, 1918, **15**, No. 7

118 War Strain and Shell Shock. M. A. Starr, New York.—p. 221.
119 Differential Diagnosis of Various Forms of Laryngeal Obstruction. F. M. Hoffman, New Brunswick.—p. 227.
120 Eating. D. E. English, Summit.—p. 231.
121 Immortality of Man. G. B. Philhower, Nutley.—p. 234.

New York Medical Journal

July 13, 1918, **108**, No. 2

122 Some Relations of Diet to Disease. L. B. Mendel, New Haven, Conn.—p. 49.
123 Pituitary Extract and Epinephrin Injections in Hay Fever; Report of Cases. E. Zueblin, Cincinnati.—p. 51.
124 Analytic View of Psychic Factor in Shock. G. M. Parker, New York.—p. 58.
125 Adrenopathic Hyperchlorhydrias. D. M. Kaplan and J. G. W. Greeff, New York.—p. 61.
126 Twilight Sleep. H. Aranow, New York.—p. 64.
127 Survey of Ear Conditions in Schoolchildren. E. W. Kobler, New York.—p. 66.
128 Scarlet Fever and Epilepsy. H. Friedel, Stapleton, S. I.—p. 68.
129 Eye, Ear, Nose and Throat Work at Recruitinig Depot. J. J. Smith, Fort McDowell, Calif.—p. 69.

Oklahoma State Medical Association Journal, Muskogee

July, 1918, **11**, No. 7

130 Radium and Its Application in Medicine and Surgery. E. S. Lain, Oklahoma City.—p. 219.
131 Carcinoma of Mastoid; Report of Case. C. M. Fullenwider, Muskogee.—p. 224.
132 Suggestions on Cause of Cancer. A. W. White, Oklahoma City.—p. 226.
133 Cancer of Uterus. R. Grosshart, Tulsa.—p. 228.
134 Relative Etiology and Pathology of Cancer. W. F. Dutton, Tulsa.—p. 229.
135 Early Diagnosis of Cancer of Stomach. C. J. Fishman, Oklahoma City.—p. 235.

Rhode Island Medical Journal, Providence

July, 1918, **2**, No. 7

136 Roentgen Method of Gastro-Intestinal Investigation. W. L. Chapman, Providence.—p. 102.

Social Hygiene, Baltimore

April, 1918, **4**, No. 2

137 Venereal Disease Knows No Boundaries. V. C. Vaughan.—p. 139.
138 Story of Committee of Fifteen of Chicago. C. W. Barnes, Chicago.—p. 145.
139 Social Status of Sailor. J. S. Taylor.—p. 157.
140 Criticism of Venereal Prophylaxis. E. H. Hooker.—p. 179.
141 Passing of Red Light District—Vice Investigations and Results. J. Mayer.—p. 197.
142 Democracy at Work—San Antonio Reborn. H. B. Ayres.—p. 211.
143 Possible Effects of War on Future of Social Hygiene Movement. T. D. Eliot.—p. 219.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 22, 1918, **1**, No. 2999

1 Significance of Cardiac Murmurs. C. Wilson.—p. 687.
2 *Transfusion with Preserved Red Blood Cells. O. H. Robertson.—p. 691.
3 *Blood Transfusion in Field Ambulance. N. M. Guiou.—p. 695.
4 Amebic Abscess of Liver. R. J. McN. Love.—p. 696.
5. Acute Intestinal Obstruction by Tapeworms (T. Saginata). J. B. Christopherson and M. Izzedin.—p. 697.

2. **Transfusion with Preserved Red Blood Cells.**—The blood used for transfusion by Robertson had been kept varying periods of time up to twenty-six days. The majority of the transfusions were given with blood preserved from ten days to two weeks. The patients transfused included cases of hemorrhage, shock and sepsis, chiefly the two former. An attempt was made to choose only those patients who would probably die without transfusion and yet who had a chance of recovery if given blood, that is, the only moderately serious and the apparently hopeless cases were excluded. The

amounts given in a single transfusion varied from 500 c.c. to 1,000 c.c., depending on the type of case. If the condition was one of marked anemia the blood sediments of two large bottles were combined. Where the anemia was less severe a large bottle and a small one—750 c.c.—were given. In cases judged to be chiefly shock, 500 c.c. amounts were used. The total fluid bulk of the transfusion was always made up to 1,000 c.c. with gelatin solution. The effect of transfusion with preserved blood was fully as striking as that observed after the giving of freshly drawn blood. There was the same marked improvement in color, the pulse became slower and stronger, and the blood pressure showed an increase of 20 to 40 points. Furthermore, this improvement was maintained and increased. Patients transfused before operation stood the operative procedure well, and subsequent progress was quite as good as in those cases transfused by the usual methods.

In all, twenty-two transfusions were given to twenty persons. Of these, eleven were discharged to the base in good condition and nine died, a mortality of 45 per cent. Those patients who died later all showed the immediate stimulating effect of transfusion with one exception, a patient with profound anemia who died just after transfusion. Four died within forty-eight hours of gas gangrene, and four lived from two to six days, dying ultimately from the same cause. Three of the four patients in this last mentioned group showed very marked improvement subsequent to transfusion; they stood operation well and were making satisfactory progress several days afterward when gas infection appeared. The length of time the blood had been kept appeared to have no influence on its beneficial effect. The improvement in those cases transfused with blood kept three weeks or more seemed to be just as marked as in those who received blood preserved for much shorter periods. Robertson thinks it is probable that four weeks represents about the limit to which blood can be kept for transfusion, as the red cells usually begin to disintegrate soon after this. The chief advantage of this method (Rous and Turner) over other methods of transfusion in current use is the great convenience of having a stock of blood on hand for busy times. The transfusions can be given relatively quickly, and the technic, which is simple and easily acquired, can be carried out entirely by one medical officer.

3. **Blood Transfusion in Field Ambulance.**—In Guiou's opinion, blood transfusion by the syringe method can be done easily in an A. D. S. and in an average regimental aid post; and by its use some patients with severe primary hemorrhage which would in the natural course of events die in the forward area will live to reach the casualty clearing station.

Bulletin of Canadian Army Medical Corps, Ottawa

June, 1918, **1**, No. 3

6 *Combined Inquiry into Presence of Diphtheria and Diphtheroid Bacilli in Open Wounds. J. G. Adami and others.—P. 34.
7 Chronic Hypertrophic Pulmonary Osteo-Arthropathy Following Bronchiectasis. T. B. Futcher.—p. 38.
8 *After-Effects of Wounds in Chest and Their Treatment. J. Meakins and T. W. Walker.—p. 40.
9 *Examination of Sputum for Albumin in Pulmonary Tuberculosis and Chronic Bronchitis. B. S. Cornell.—p. 45.
10 Delayed Tetanus. H. Morell.—p. 46.

6. **Presence of Diphtheria and Diphtheroid Bacilli in Wounds.**—Adami and his associates point out that morphologically and, in the early stages, culturally, diphtheroid bacilli from wounds are, many of them, indistinguishable from *B. diphtheriae.* Harmless, nontoxic bacilli may be present in wounds affording cultures possessing the same sugar formula as regards dextrose, lactose, saccharose and dextrine, as does the true virulent Klebs-Loeffler bacillus. It is not justifiable, therefore, to make a diagnosis of diphtherial infection of wounds, either from smears alone or from stained preparations and cultural characteristics. The demonstration that the bacilli produce toxins, ectotoxins, that is, the result of inoculation of broth cultures, is alone capable of proving the presence of infection by the true virulent *B. diphtheriae.* By the staining, cultural and fermentation tests, four cases of apparent diphtherial infection have been detected in a bacteriologic study of 306 cases of open wounds. By the decisive test of inoculation these are reduced to two. There is a large body of evidence showing that even isolated cases of diphtherial infection of wounds are distinctly uncommon among the wounded overseas, and complete absence of any evidence in Great Britain that these isolated cases have acted as foci for the spread of the infection to other wounded men. No evidence of a widespread infection of open wounds by diphtheria bacilli has been discovered in Canadian hospitals overseas in Great Britain. Diphtheroid bacilli of various orders, while not common, are, as might be expected, more frequent in open wounds. There is no evidence that these have exerted deleterious effects. There is a certain amount of evidence that particular species of diphtheroid bacilli characterize particular hospitals.

8. **After-Effects of Wounds of Chest and Treatment.**—According to Meakins and Walker deformity of the chest wall is a very important disabling after-effect of gunshot wounds of the chest. This deformity follows most frequently prolonged involvement of the pleural cavity. The early and persistant evacuation of fluid from the pleural cavity, either by aspiration or by operation, is of great importance in preventing the development of the deformity. Especially is this so in cases of hemothorax. The early use of special exercises is beneficial in preventing or overcoming this deformity. The prognosis in this condition is exceptionally good under suitable treatment.

9. **Examination of Sputum for Albumin in Tuberculosis and Bronchitis.**—Altogether 580 tests were done by Cornell. All tests were done on twenty-four hour specimens. To 5 c.c. of sputum, add 20 c.c. of normal saline and 5 or 6 drops of acetic acid. Shake thoroughly and filter. Test the filtrate by boiling or with nitric acid for albumin. In fifty-seven cases of chronic bronchitis the albumin test was invariably negative. In seventy-three cases of suspected tuberculosis without definite signs about 87 per cent. gave a positive reaction, and probably 60 per cent. of these showed organisms within two or three months. In seventy-one cases of clinical tuberculosis 79 per cent. showed albumin if the sputum was taken during an elevation of temperature, but albumin was nearly always absent from sputum collected when the temperature and pulse were normal or subnormal. In about 98 per cent. of forty-two cases of proved tuberculosis, the albumin test was positive at some period in the couse of the disease. The author points out that in examining sputum for albumin, whether the case be one of suspected, clinical, or proved tuberculosis, a negative result gives no information unless the sputum be taken over a period of time on successive days and during a rise of temperature. In other words, choose a febrile period for taking the sputum, as albumin will be present then if ever.

Lancet, London

June 22, 1918, **1**, No. 4947

11 Modern Views on Diabetes. E. P. Poulton.—p. 863.
12 *Treatment of Severe Relapsing Cases of Malaria. E. B. Gunson, F. W. Winning, G. A. Johnstone, J. H. Porter and G. B. Scott.—p. 866.
13 Clinical Aspects of Tuberculous Mesenteric Glands. H. W. Carson. p. 869.
14 Sanatorium Treatment of Pulmonary Tuberculosis. N. D. Bardswell.—p. 872.

12. **Treatment of Relapsing Cases of Malaria.**—A considerable number of patients suffering from severe malaria—amounting in one series of 328 cases to 30 per cent. of the total number under treatment at one period—when treated by oral quinin continue to relapse, develop long periods of sustained pyrexia, or become increasingly cachectic. A group of ninety successive patients of this type were treated by Gunson and his associates by two intensive courses of quinin (intramuscular, 20 grains, 20 grain oral, intramuscular, 20 grains daily for four days, the course being repeated ten days later). The result of such treatment was an immediate, progressive and marked improvement in the general condition in all cases. Relapses occurred in 44 per cent. of cases within four weeks, but were of considerably less severity than previously and were completely controlled by oral quinin. Another series of 552 relapsing cases, less severe in type, were treated during the apyrexic period, by three different methods: *A*. 368 were given no quinin; of these, 46 per cent. relapsed within three

weeks; *B.* 94 were given 20 grains of quinin on Saturdays and Sundays; of these, 10 per cent. relapsed within three weeks; *C.* 90 were given 20 grains of quinin daily; of these, 8 per cent. relapsed within three weeks.

The authors conclude therefore that routine treatment of oral quinin is adequate in the majority of cases of relapsing malaria; it is necessary to continue the quinin treatment in doses of 20 grains either daily or twice weekly during the patient's stay in the hospital to obviate a high incidence of relapses. In the cases (the minority) where oral quinin proves inadequate intensive treatment by one or more courses of combined oral and intramuscular quinin (60 grains daily for four days) is followed by such marked improvement as to justify the adoption of this treatment as a routine procedure for such cases, the chief indication for this course being progressive cachexia and visceral enlargement in a patient suffering from repeated relapses or prolonged pyrexia and not responding to oral quinin.

Medical Journal of Australia, Sydney

June 8, 1918, **1**, No. 23

15 Gunshot Wounds of Knee Joint. B. Quick.—p. 469. To be continued.
16 Portable Apparatus for Administration of Warmed Anesthetic Vapor. C. Dyring.—p. 474.
17 Research and General Practitioner. W. T. J. Newton.—p. 476.

Bulletin de l'Académie de Médecine, Paris

June 11, 1918, **79**, No. 23

18 *Treatment of Gastro-Intestinal Atony. G. Hayem.—p. 440.
19 Projectiles in Contact with Vessels. R. Le Fort.—p. 443.

18. **Artificial Mineral Water in Treatment of Gastro-Intestinal Atony.**—Hayem here reports what he calls Nos. 6 and 7 in his series of salt solutions adapted for various pathologic conditions in the digestive tract. Each has been tested in hundreds of cases and has proved its efficacy in the field specified. The formulas are based on certain natural mineral waters, and are adapted for cases of dilatation of the stomach, myasthenia, with or without marked atrophy of muscles. There is usually more or less atrophy of glands in such cases, as well as atony of the bowels. The formula for No. 6 calls for 1 liter distilled water with 2.5 gm. each of sodium chlorid and of magnesium chlorid, with 2 gm. of sodium bicarbonate. If the constipation fails to yield to this, he changes to No. 7 which is the same except that the sodium bicarbonate is replaced by 3 or 5 gm. of sodium sulphate. The magnesium chlorid seems to act on the smooth muscle fibers of the digestive tract, stimulating them to contract and regulating them. He does not mention the doses to be taken.

Paris Médical

May 4, 1918, **8**, No. 18

20 Ouabain and Digitalis in Heart Disease. H. Vaquez and R. Lutembacher.—p. 338.
21 *Serotherapy of Meningitis. A. Netter.—p. 343.
22 Present Status of Transfusion of Blood. J. Rieux.—p. 349.
23 *Serotherapy of Pneumonia. P. Menetrier and Wolff.—p. 355.
24 The Chloramins in Surgery and Hygiene. M. Guillot and M. Daufresne.—p. 359.
25 Does Lactic Bacteriotherapy Acidify the Intestines? P. Carnot and H. Bondouy.—p. 365.

21. **Importance of Polyvalent Serotherapy.**—Netter reports clinical experiences which confirm the superior efficacy of polyvalent serums. He specifies in particular that polyvalent serum from the Rockefeller Institute gave better results than the serum made at Paris or obtained from the official establishments at Berlin, Berne, Darmstadt and elsewhere. Some patients who had been showing no improvement under antiserum from the Paris Pasteur Institute began to improve at once to complete recovery under the serum from the Rockefeller Institute. He expatiates further on the advantages of determining the strain of meningococci involved. The results of serotherapy have grown constantly better in his experience with 347 cases in the last ten years since he has made a practice of doing this. The mortality in 110 infants has dropped from 20.5 to 13.2 per cent.; in 199 older children, from 21.4 to 4.1 per cent., and in the global mortality from 16.3 to 8.49 per cent. While waiting for certainty, a polyvalent serum should be used, or an antiserum for each of the two principal types of meningococci can be injected simultaneously.

23. **Serotherapy in Pneumonia.**—The action of the antipneumococcus serum given in twenty-four cases was more intensely toxic than with any other form of serotherapy in the writers' experience. About twelve days after the first injection of serum, ten of the eighteen surviving patients developed general malaise, pains in joints and muscles and some had eruptions. There was also fever, and in some, diarrhea, abdominal pains, vomiting and albuminuria. In one woman of 29 the fever kept at 104.3 for eight days, with other symptoms. In four of the twenty-four a marked and decided change for the better followed the injection of the serum. This group included a pregnant woman and an aged man; both are conditions in which the disease is liable to prove grave. In the others the disease continued its regular course to recovery in all but six; these were exceptionally severe cases or the system was debilitated from other cause. The antipneumococcus serum came from the Paris Pasteur Institute.

Presse Médicale, Paris

May 30, 1918, **26**, No. 30

26 *War Wounds of Chest. J. L. Roux-Berger.—p. 269.
27 *Reflex Stomach Symptoms. G. Faroy.—p. 271.
28 Factitious Skin Diseases. J. Minet.—p. 274.
29 Bedside Roentgenoscopy of the Wounded. H. Béclère.—p. 275.
30 Device to Correct Talipes Equinus. Privat and Belot.—p. 276.
31 *Intertrigo Mycosis. R. Sabouraud.—p. 276.

June 13, 1918, **26**, No. 33

32 *Classification of Colon and Proteus Groups. H. Roger.—p. 301.
33 *Projectiles in Pleura or Diaphragm. E. P. de la Villéon.—p. 302.
34 *Soldiers' Enlarged Parotids. C. Mattéi.—p. 303.
35 *Subcutaneous Homohemotherapy. J. A. Sicard.—p. 304.

June 20, 1918, **26**, No. 34

36 *Dyspepsias. F. Ramond.—p. 309.
37 Bullet Fractures of Long Bones. J. Delmas.—p. 310.
38 Factitious Jaundice. Hélouin.—p. 312.
39 Intravenous Injection of Water-Insoluble Products. P. Chevallier.—p. 312.

26. **Dangers of Incomplete Operations After War Wounds of Chest.**—Roux-Berger has had a number of cases in his service in which complications had developed after a war wound of the chest in which the wound at the first operation had not been thoroughly cleared out. Infected fractures of ribs, shell scraps, etc., had been left in the tissues, or a pleurobronchial fistula. Attempts to correct these later necessitated dangerous and tedious operations in addition to the long train of disturbances and sequels from these complications. He emphasizes that all would have been avoided if the wound had been treated thoroughly at the start, clearing out all foreign bodies and warding off infection and hemothorax by taking an inventory, as it were, of all the lesions caused by the projectile and repairing them in turn.

27. **Stomach Trouble of Intestinal Origin.**—Faroy refers to disturbances of the sensorimotor gastric dyspepsia type for which some colon trouble is responsible. The colitis may be latent and unsuspected; the patient refers all his disturbances to the stomach. The drowsiness after meals contrasts with the occasional sleeplessness at night. Sometimes the insomnia is accompanied by agitation, dyspnea, tachycardia and other nervous symptoms. During the daytime there may be headache, lassitude, fleeting rheumatic pains, jumping from joint to joint. The objective findings in the stomach are practically normal, but the solar plexus is tender and spasm of the colon can be palpated. This directs attention to the bowels, and by questioning we get at the diagnosis of an abortive, incomplete form of mucous colitis, the source of the reflex nervous-gastric set of symptoms by mediation of the sympathetic system—an entero-solar-gastric neurosis. Ptosis, atony of the stomach and bolting the food are supposed to be capable of creating a similar set of symptoms, but, more probably, the underlying bowel trouble has simply been overlooked. The causal importance of the intestinal factor is demonstrated once for all by the benefit from a course of laxatives to improve bowel functioning and combat the tendency to spasm. The stomach can be disregarded in treatment. Examination of the stools may suggest the necessity for measures addressed

to the kidney or pancreas, and the neuropathic tendency should also be combated.

31. **Intertrigo Mycosis.**—Sabouraud describes a form of intertrigo which develops between the toes and seems to be eczema, but is rebellious to all treatment based on this assumption. A special fungus is involved, and the treatment must begin with removal of all the dead and horny tissue, scraping with a curet and pumice stone. If the tissues are made to bleed, this does no harm. The epidermophyton causing the lesion is very vulnerable, but it is embedded in a horny epidermis which protects it unless this is thoroughly removed. This once accomplished, tincture of iodin, diluted 1 to 5, is rubbed very hard into the skin and left to dry. Then a zinc oxid cream is applied. The whole procedure, scraping, iodin, zinc cream, is repeated daily for eight days. Then the zinc cream is changed for a salve of 0.30 gm. chrysophanic acid in 30 gm. lard. Recurrence is the rule because the horny tissues are so seldom completely removed.

32. **Classification of Colon and Proteus Groups of Bacteria.**—Roger declares that the classification should be by the action of these bacteria on gelatin, on milk and on sugars. His table shows how this brings order out of confusion. He advocates further the restriction of the term "bacillus" to mobile and of "bacterium" to immobile microbes.

33. **Projectiles in Pleura and Diaphragm.**—De la Villéon has extracted projectiles from the pleura in forty-eight cases and from the diaphragm in sixteen. This experience has convinced him that the best method to extract a projectile from the pleura is by a buttonhole incision, under screen control, except when the foreign body is in the mediastinal pleura. This requires an ample thoracotomy to avoid injury of important organs. The buttonhole incision should always be at some distance from the site of the projectile which is thus reached slanting, to avoid ribs. The long slanting passage of the forceps he has devised for the purpose does not seem to do any harm. With a projectile in the right diaphragm, the forceps are introduced from above, through a buttonhole, the diaphragm resting on the liver as on a table. In the left diaphragm conditions are entirely different, and there would be danger of injuring viscera by entering from above. For the left side, he makes the extraction from below, with a laparotomy incision parallel to the costal arch. With this, the roentgen screen is seldom needed. A high supra-umbilical laparotomy is the preferable mode of access to a projectile in the mediastinal diaphragm. His operations for extraction of projectiles in pleura or diaphragm were done usually after the wound had healed, that is, at least three weeks after the injury.

34. **Soldiers' Large Parotids.**—Mattéi has investigated fifty cases of what he calls hypertrophic cirrhosis of the parotid glands but was unable to find any history of mumps in the antecedents, or of orchitis. On the other hand in 170 men (French and Americans), who had recently recovered from mumps, he never discovered any tendency afterward to hardness or protrusion of the parotid glands. The chronic large parotids were especially common in Arab and Indochinese troops, but in them the parotids returned to approximately normal size in the spring. They were mostly men over 30.

35. **Subcutaneous Injection of Blood.**—Sicard reports very favorable experiences with this method, which he calls subcutaneous homohemotherapy. A needle is introduced into the cellular tissue of the abdominal wall of the receptor. Then the venous blood is drawn from the donor into a paraffined capsule and is taken up at once from the capsule into a syringe. The syringe is then adapted to the needle in the receptor's abdominal wall, and the blood is injected at once into the subcutaneous cellular tissue. The whole procedure is simple and harmless and permits injection of from 80 to 120 c.c. of whole blood at one sitting. The blood was always smoothly absorbed in his cases even in the much debilitated. In the last four years he has cured by this means four patients with purpura and internal hemorrhages which had not been influenced by injections of horse serum. They recovered after injection of 100 c.c. of whole blood in this way on four successive days. He also found the method successful in two hemophiliacs who had exhibited anaphylactic reactions when injected with horse serum. The subcutaneous injection of whole blood was borne without mishap and permitted the extraction of teeth in one case and appendicectomy in the other case. The benefit is promptly apparent when it is a hemorrhagic case, but takes longer to show in the cases of anemia.

36. **The Principal Dyspepsia Syndromes.**—Ramond describes the four main types of dyspepsia ordinarily encountered. With the first, the vasomotor type, the meal, especially at night, may be immediately followed by congestion of the face, cold hands and feet, sometimes headache, dizziness, with or without tinnitus, dilated pupils, lassitude, tachycardia, tachypnea, etc., all testifying to vasomotor disturbances of the sympathetic system. The trouble here is not dyspepsia; treatment should be addressed to soothing the nervous system, suppressing stimulants and ordering sedatives, of which belladonna is the most active, with hydrotherapy and hygiene. The second, the cyclic type, includes a vasomotor phase but it does not come on at once after the meal; there is usually an interval of fifteen minutes or more. After the vasomotor phase, lasting for a few minutes or half hour, and an interval of one or several hours, comes a phase of pain. It may be like the pain from a burn or a colic, and the pain may radiate. This tardy pain is probably of inflammatory origin. After the chyme has passed out of the stomach the congested and more or less inflamed mucosa is exposed unprotected to the gastric secretions, and pain results. This explanation is even more plausible in the cases of the third type he describes, the inverse type, in which the pain comes on at once after the meal or after the first few mouthfuls, with possibly nausea and vomiting for a few minutes or half an hour and then these sensations subside, disappearing in the course of fifteen minutes, leaving vasomotor symptoms. The epigastric and xiphoid points are tender and also two points on the left side, at the junction of the cartilages of the eighth and tenth ribs and at a point on the outer margin of the rectus two fingerbreadths above the transverse umbilicus line. The congestion or gastritis in this type is in the upper portion of the stomach, while in the preceding type it is in the lower portion. The disturbances in this inverse type seem to be mainly of toxic origin, from abuse of alcohol, from gas poisoning, from autointoxication. The fourth type is a combination of these two types, the pain is both early and tardy.

In examining a patient it is important to ask the questions in a certain order, inquiring as to symptoms from waking to bedtime and at night, the nature of the breakfast and whether it is taken with appetite, the sensations between breakfast and lunch, between the midday and the evening meal, the sensations experienced one hour, two hours, three hours after the meal, and the sensations from the stomach during the night. By interrogating the patient in this way, the physician refrains from suggesting symptoms, and at the same time he gets a surprisingly complete oversight of conditions, with consequent indications for the special treatment of each type.

Progrès Médical, Paris

May 25, 1918, **33**, No. 21

40 *Psycho-Nervous Pains. Bernheim.—p. 181.
41 *War Neurasthenias. H. Damaye.—p. 182.
42 Phlebitis from Muscular Effort. J. Murard.—p. 186.

40. **Pains Created or Maintained by Autosuggestion.**—Bernheim gives some typical examples of purely imaginary pains, or imaginary pains grafted on a primary organic pain from some transient lesion. Two of the patients were children of 9; one screamed whenever the umbilicus was touched. A small healed excoriation explained the trouble. In the other child there was pain in the back and hand, sequels of acute articular rheumatism. In the adults the pain developed after a physical effort or joint lesion. In each case waking suggestion cured the pain immediately, or it subsided more gradually, but all yielded in time. In another group of cases the autosuggestion pain, as sequel of some fall or gunshot wound or without appreciable organic lesion, had lasted up to twenty years, and had become rebellious to all measures. He explains that the sensory innervation, like other functions, is rarely in a state of absolute repose; in some region

or other there is an itching, a fleeting painful sensation, a feeling of heat or of heaviness, muscular or vasomotor spasms, etc. These sensations are not noticed as a rule during the day, but, when wakeful at night, they force themselves on the consciousness and are remembered and in the more impressionable may gradually become fixed obsessions. In one case the tenderness and pain were in a small patch in the vertex. Bernheim reiterates that every "psycho-nervous pain," single or multiple, primary or secondary, is amenable to psychotherapy *unless of* such long standing that it has become a sensory tic as it were. It is important to recognize the nature of these disturbances; when the physician tries one remedy after another on the assumption of an organic basis and the patient feels no relief, the latter is confirmed more and more in the belief that his pain is strongly rooted. The physician thus applies suggestion in the wrong direction.

41. **War Neurasthenia.**—Damaye has had a total of 123 men with neurasthenia in his psychiatric service in the Amiens region. In seventy-six cases the neurasthenia was pure. These neurasthenia cases formed nearly one eighth of the 916 patients in the course of two years. The neurasthenia occurs in four different forms according as it affects the predisposed or develops after a concussion or bombardment or after a skull wound. The symptoms became attenuated in the majority of cases under treatment with quiet and repose, daily half-hour baths at body temperature, courses of sodium cacodylate, with prolonged hot foot baths or mustard baths in case of headache, wet packs on the cicatrix in the skull and iodized potions, in addition to a calomel purge and milk diet at first.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 23, 1918, **48**, No. 12

43 *Iodin in Prophylaxis of Endemic Goiter. C. Roux.—p. 369.
44 *Eczema Problems. F. Lewandowsky.—p. 371.
45 Artificial Leg. (Eine neue Beinprothese.) W. Odermatt.—p. 380.

March 30, 1918, **48**, No. 13

46 Treatment of Fractured Fingers. A. Ziegler.—p. 401.
47 *Asthma in Children and Mountain Climate. A. von Planta.—p. 408.
48 *Ligation of Internal Jugular Vein. Stolz.—p. 415.
49 Modern Dietaries and Dental Caries. H. Koller.—p. 421.

43. **Prophylaxis of Goiter.**—Roux emphasizes that the one absolutely certain fact acquired to date in the epidemiology of endemic goiter is that iodin, applied at the right time, is the best treatment and that it is usually effectual, and without danger if given cautiously. After the goiter has once developed enough to attract attention, it is too late for iodin to be effectual in the same way. Roux suggests that it would be a simple matter to have an open jar with a few crystals of iodin placed in each schoolroom, the crystals renewed as they evaporate. The amount of iodin thus inhaled would be infinitesimal and could not do any harm, while during the school year it might act as effectually as the iodin inhaled during a month at the seashore, which generally suffices. At the hospital and policlinic in his charge, he distributes on every occasion small boxwood medallions containing a crystal of iodin in waxed paper. Without waiting for the etiology of goiter to be cleared up, the marvellous and rapid action of preparations of iodin in homeopathic doses on the diffuse goiters of young pigs, young dogs and young children should be utilized in arresting the progress of the goiter and warding it off in others. The only thing is to warn the public and pharmacists of the dangers of iodin medication when not properly managed.

44. **Eczema.**—Lewandowsky concludes his historical and clinical study of eczema by defining it as the result of a congenital or acquired hypersusceptibility of the skin to irritations of the most diverse kinds, acting on the skin from without or from within. Every case in which an eczema can be traced to a certain definite irritation acting from within is of essential importance, to science, and the reliance here must be mainly on the observations of practitioners. The experts in medical chemistry may then determine the substances circulating in the blood which induce the excessive susceptibility, and seek to reproduce with them the eczema in other subjects. Lewandowsky is professor of dermatology at the University of Basel, and he advances this hypothesis as to the nature of eczema as the one that to date best conforms to the known facts.

47. **Asthma in Children.**—Planta reports that seven years of additional experience have confirmed his previous statements as to the value of mountain climate in treatment of asthma in children, especially those of the exudative diathesis type. He practices at St. Moritz and gives the details of twenty-one cases in children in his charge there. Over 38 per cent. have had no further attacks of asthma since their return to the lowlands, and 33 per cent. were materially improved. Five of the twenty-one children have had a return of the asthma since, but in all the children the general health improved remarkably. The asthma had developed between the ages of 2 and 6. One of the cured children is brought back to the mountains for two months each year. He has known of several instances in which children born with the exudative diathesis in the mountains developed asthma when the family moved to the lowlands, and the asthma disappeared when the child returned to a mountain climate.

48. **Ligation of Internal Jugular Vein.**—Stolz adds a fourth case to the three he has found on record in which ligation of the internal jugular vein had fatal consequences. Linser found evidences of insufficiency of this vein in 3 per cent. of 1,000 skulls examined, and this was five times more frequent on the left side than on the right. Stolz' experience suggests that when a tumor has been compressing the vein, a ligature can be thrown around it without apprehension, as a reliable collateral circulation must have developed. When this is not the case, he advises to clamp the vein and watch what happens in the circulation. If this looks threatening it is better to implant a segment from the saphenous vein after the resection rather than to ligate alone. In his case a cancer in the right side of the neck had been excised, with resection of the internal jugular. The face became cyanotic at once for a time, and the breathing became deep and slow; the man of 56 never regained full consciousness and died the fourth day.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 16, 1918, **39**, No. 39

50 *Epinephrin Cardiovascular Test. G. Ghedini.—p. 385.
51 Cysts in the Vagina. F. Bindi.—p. 387.

May 19, 1918, **39**, No. 40

52 Chemical Diagnosis of Picric Acid Jaundice. E. Pittarelli.—p. 395.

May 23, 1918, **39**, No. 41

53 Abscess in Abdominal Wall Simulating Enlarged Gallbladder. A. Cardarelli.—p. 405.

50. **Epinephrin Test of Functional Capacity of the Heart.**—Ghedini discusses the value of the information to be derived from the behavior of the heart after epinephrin has induced contraction of the peripheral vessels. The response may vary with the amount of epinephrin already circulating in the blood, also with the degree of arteriosclerosis that may be present, and with other conditions. The response may thus vary widely in different persons and in the same person at various times, giving misleading findings, some persons presenting a strong reaction and others none at all, even under apparently similar conditions. He shows, however, that by combining the test with careful investigation of the blood pressure and pulse before and after, a dependable oversight of conditions may be obtained, beyond anything to be realized with either method of examining alone. The Uskoff sphygmotonograph, the Pachon oscillometer with recording drum attachment, or other apparatus of the kind, used in connection with the epinephrin test, recording the findings before and afterward, provides an important means of estimating conditions in the cardiovascular apparatus. He adds that the epinephrin test is simple and easy, and seems to be harmless.

Policlinico, Rome

June 9, 1918, **25**, No. 23

54 *Treatment of Protozoan Diseases. T. Pontano.—p. 533.
55 Splenectomy for War Wound. I. Scalone.—p. 538.

June 16, 1918, **25**, No. 24

56 *False Aneurysm of the Carotid. P. Gilberti.—p. 557.
57 *Treatment of Malaria. D. Giannelli.—p. 562.

54. **Varying the Technic in Treatment of Malaria and Other Protozoan Diseases.**—Pontano is instructor in pathology at the University of Rome, and for a year has been in charge of a hospital there to which are sent the soldiers returning with malaria from Macedonia. In about 11 per cent. of the cases it proved impossible to cure the malaria by the usual method, that is, by giving 2 gm. of quinin by the mouth daily for three weeks, with intermissions of four or five days between the weeks. He explains the various reasons which interfered at times with the systematic preventive use of quinin when the troops were sent to Macedonia. The men were supposed to be taking 0.60 gm. of quinin daily between April and November, but many did not get this systematic prophylaxis all the time. One reason for the nontaking or the nonabsorption of the drug was the epidemic of dysentery which preceded, by a month, the outbreak of the malaria epidemic in each of the two years of the campaign. From this extensive experience Pontano writes that the malaria parasites and protozoa in general are liable to become resistant to the specific drug given constantly by one route. Even increasing the dose manyfold gives no better results. But by changing the mode of administration, the drug then is able to act on the parasites with its pristine force. It is possible that the molecular composition of the drug becomes altered as it enters the organism by another route. A few small doses by subcutaneous or intramuscular injection may speedily conquer the malaria when it had proved refractory even to large doses long continued by the mouth. The same principle probably applies to all protozoan diseases. They may succumb to the same drug when its molecular composition has been modified by changing to another method of introduction.

56. **Paralysis of Recurrent Nerve from False Aneurysm.**—The traumatic false aneurysm from a war wound had induced paralysis of the recurrent and hypoglossal nerves and inability to swallow from homolateral paralysis of the uvula and paralysis of the lingual nerve. Gilberti opened the pulsating hematoma, cleared it of clots, and clamped the trunk of the spurting common carotid. The operation was concluded by ligating the common carotid and also the internal jugular vein. Apparently complete clinical recovery followed. Ligation of both artery and vein reduced both the arterial and the venous circulation together, and the circulation left, although reduced, is balanced.

57. **Treatment of Malaria.**—Gianelli quotes a popular saying to the effect that malaria in a soldier never gets cured, and adds that, unfortunately, this often is true. The lack of systematic quinin treatment is the reason for this, as the malarial soldier passes through so many hands. He urges that special malaria sanatoriums should be established in elevated positions not far behind the front, where the men could be given thorough treatment without delay, before the parasites get too firm a foothold and grow drug-fast. This would also prevent infection of the home regions by the malarial soldiers returning from the hotbeds of malaria in Macedonia and elsewhere.

Riforma Medica, Naples

May 25, 1918, **34**, No. 21

58 Abscess in Abdominal Wall Simulating Enlarged Gallbladder. A. Cardarelli.—p. 402.
59 *Traumatic Hernia of the Diaphragm. P. Guizzetti.—p. 404.

June 1, 1918, **34**, No. 22

60 *Fracture of Internal Epicondyle of Femur. G. Ferrarini.—p. 422.
61 *Treatment of Sciatica by Lumbar Anesthesia. C. Mancini.—p. 428.
62 The Diet and Certain Skin Diseases. D. Barduzzi.—p. 430.
63 Child Welfare Work in Italy. A. Anile.—p. 431.
64 *Care of Tuberculous Soldiers. C. Baduel and C. Mendes.—p. 438.

59. **Traumatic Hernia of the Diaphragm.**—Guizzetti reports hernia of the diaphragm in five soldiers, confirmed by necropsy. Two of the men lived one and eight years after the fall or stab wound causing the hernia. Then strangulation of viscera in the hernia proved speedily fatal. The site of the hernia was in the left pleura in these five cases, and in all he has found reported from war wounds. The liver protects the right half of the diaphragm. The laceration is always in the unsupported center. The colon was found in the hernia in each of his cases, the stomach in three, and the spleen, besides, in two.

60. **Fracture of Internal Epicondyle of Femur.**—Ferrarini describes the aspect of and symptoms from this typical traumatic lesion of the internal epicondyle of the femur. The epicondyle is tender and every step in walking is accompanied by pain in the inner side of the knee, and by a brusque muscular contraction, a defense phenomenon. Electric tests confirm that the distal attachment of certain muscles has been torn loose, especially the inferior fascia of the great adductor muscle.

61 **Lumbar Anesthesia in Treatment of Sciatica.**—Mancini remarks that the conditions at the advanced front amply explain the large number of cases of sciatica that are found constantly in the military hospitals. Treatment is mainly restricted to local injection of phenol, baths and electricity but the disturbances soon return as a rule after any or all of these. He has obtained much better and more durable results by inducing lumbar anesthesia. He injects 12 or 15 cg. of a 5 per cent. solution of novocain, introducing the needle in the third or fourth lumbar intervertebral space. The relief of pain is immediate and complete. The anesthesia lasts from forty-five minutes to two hours. This brings the anesthetic into direct contact with the roots of the injured nerves, as well as with their connections with the spinal cord. The relief from pain is more complete and more durable than when the anesthetic is injected into the spinal cavity. The anesthetic seems to have a favorable action likewise on motor and trophic disturbances. He has applied this treatment in pure sciatica and also in cases of pain in the sciatic and ischium region from disease or injury by a projectile. Of course the benefit is durable only in the absence of anatomic lesions along the sensory nerve, but even these seem to be favorably modified to a certain extent. Any anesthetic might do, but novocain or its equivalents have certain advantages. He adds a minute quantity of epinephrin to the anesthetic. In one case he injected by mistake nearly twice the intended dose of the anesthetic, but no harm resulted.

64. Summarized. July 20, p. 232, when it appeared elsewhere.

Rivista Critica di Clinica Medica, Florence

May 18, 1918, **19**, No. 20

65 *The Skin in Typhoid. A. Campani and F. Bergolli.—p 229. Commenced in No. 19, p. 217.

May 25, 1918, **19**, No. 21

66 Prescribing in Wartime. G. Coronedi.—p. 241.

June 1, 1918, **19**, No. 22

67 *Serotherapy in Meningitis. G. Marchetti.—p. 253.

65. **Skin Manifestations in Typhoid.**—Campani and Bergolli found rose spots more pronounced and more numerous in their cases of typhoid with a favorable outcome than in the graver cases. This suggests that they may be regarded as evidence of good reacting and defensive powers. Herpes was noted in twelve of the 350 cases. Desquamation was common, and the tendency to hyperkeratosis of palms and soles with yellowish discoloration—the palmo-plantar sign—was pronounced in the graver cases and in 90 per cent. of the fatal cases. There was also an occasional fetid maceration of the palms. This, with the other skin changes in typhoid, suggests that the skin in typhoid has an active eliminating function for the typhoid toxins, especially the palms of the hands.

67. **Serotherapy of Meningitis.**—Marchetti injected the antimeningococcus serum one day by the vein, the next day intraspinally, and continued the alternate injections in this way. Only one of the eleven patients died and this one was already debilitated by malaria. The general symptoms grew milder under this alternate treatment, the course of the cases averaging five days less than in the parallel series given intraspinal injections alone. The largest amount of serum used was 280 c.c., the average being 238 c.c. with 125 by the vein and 113 by the intraspinal route. The drop in the mortality from 53 to 9 per cent. was too striking to be merely a coincidence.

Tumori, Rome

May 18, 1918, 6, No. 1

68 *Dercum's Disease in Young Soldier. C. Martelli.—p. 1.
69. Cystic Tumor of Kidney. G. Buschi.—p. 18.
70 *When Is Cancer Operable? J. W. Vaughan (Detroit).—p. 46. G. Fichera.—p. 53.
71 Action of Sarcoma Autolysates on Rat Sarcoma. B. Morpurgo.—p. 55. G. Fichera.—p. 58.

68. **Adiposis Dolorosa in Young Soldier.**—The symmetrical and extremely painful subcutaneous lipomas were accompanied by profound asthenia, the whole presenting the picture of typical Dercum's disease. The first lipoma developed about one month after the man had made an exceptionally violent effort to lift a heavy stone, during which his shoulder had become dislocated. The pain was intense and the previously robust young man grew weaker as more lipomas developed. They lay free in the subcutaneous adipose tissue and were easily removed. From study of this case and the literature, Martelli deduces that the cause is some upset in the balance of fat production, the result of multiple disturbance in the endocrine-sympathetic systems. It seems that the organism in trying to get rid of the resulting toxic products from this abnormal fat production localizes them in the form of these subcutaneous lipomas.

70. **When Is Cancer Operable?**—This is a translation of Vaughan's work published in The Journal, Dec. 8, 1917. He referred to Fichera's research and experiences with autolysates of cancer tissue in treatment of cancer, and Fichera here brings the subject and literature down to date.

Medicina Ibera, Madrid

March 21, 1918, 2, No. 20

72 *Strabismus. Marquez.—p. 341.
73 Aortitis with Tumor in Sternum. M. U. Sarachaga.—p. 342.
74 *Secondary Nephrectomy. C. Negrete.—p. 343.
75 Alcoholic Polyneuritis. C. Juarros.—p. 345.
76 Eczema Around Orifices. Sicilia.—p. 346.
77. *Titration of Antigen for Wassermann Reaction. J. P. Courtier.—p. 347.

March 30, 1918, 2, No. 21

78 *Remedies for Constipation. F. F. Martinez.—p. 369.
79 *Prolapse of the Urethra. A. Roldan.—p. 372.
80 *Experiences with Wassermann Reaction. Villapadierna.—p. 373.
81 Digestive Disturbances in Children. C. S. de los Terreros.—p. 378.

72. **Strabismus.**—The special features of the case reported by Marquez are that after operative correction of the convergent strabismus of 30 degrees in the young man, the surgical measures were supplemented by exercises to train the eyes in direct vision. These orthoptic exercises complete the task begun by the operation on the eye muscles in severe cases. In mild cases they may alone, with atropin and glasses, correct the squint, thus avoiding the necessity for an operation. (He does not describe the orthoptic measures used.)

74. **Tuberculosis of the Kidney.**—Negrete relieved the threatening symptoms from the tuberculous pyonephrosis by nephrostomy and rinsing out the suppurating cavity. When the woman of 29 had improved under these measures, he removed the kidney, and this secondary nephrectomy was perfectly tolerated and the woman's health has been good since. He warns that tuberculosis of the kidney often presents bladder disturbances as the first manifestation. Later come polyuria, the urine limpid at first and then turbid, with slight hematuria not connected with exercise. Or hematuria may be the first sign of trouble. No time should be wasted in trying to cure the bladder disturbances as the trouble is a renal cystitis. An early diagnosis of renal tuberculosis permits early nephrectomy. To wait for a spontaneous or medical cure is to invite disaster. On the other hand, after removal of a kidney with not very far advanced tuberculosis, tuberculous lesions elsewhere may retrogress, especially incipient involvement of the other kidney.

77. **The Wassermann Reaction.**—Courtier insists that the antigen should be titrated for the Wassermann test. To fix the quantity of complement regardless of the specific power of the antigen exposes to error. He describes a simple method for titrating the antigen, using five sets of tubes.

78. **Habitual Constipation.**—Martinez, in discussing habitual constipation, remarks that the action of purgatives is much more complex than is generally realized. They inflame the bowel, with consequent exudation, they stimulate the digestive glands to hypersecretion, and there is desquamation of the bowel mucosa, along with other phenomena which suggest that the purgative induces the formation of some substance that is carried to all points in the glands, muscles and nerves. A similar result can be attained with magnesium sulphate, he says, reporting excellent results from its use. It modifies conditions so that the habit of constipation seems to be broken up. He gives the magnesium sulphate in a 25 per cent. solution, using ampules containing 0.5 gm. of the drug in 2 gm. of distilled water, and injects one ampule a day, continuing for from six to ten days as a rule in the inveterate cases. In the mild cases one or two injections may suffice, or half the above dose may be given. As a rule, by the sixth or tenth day even the most inveterate constipation is broken up permanently. In exceptionally intractable cases he injected two ampules morning and night, in arm or buttocks.

79. **Prolapse of the Urethra.**—In a girl of 15 the prolapsed mucosa on one side of the urethra resembled a polyp, and it was cauterized. In an older woman the prolapse was annular and extensive, requiring resection of a ring of mucosa. In both cases Roldan insisted on preliminary treatment of concomitant vaginitis as the first step, as infection and hypertrophy of the mucosa are the main factors in the prolapse.

80. **Experiences with the Wassermann Reaction.**—Villapadierna has applied the original Wassermann technic and the simpler Noguchi method, as modified by Azua, and regards the latter as sufficiently exact for all practical purposes. Only when a decision as to marriage or other important question requires extra precision is it necessary to apply both technics.

Prensa Medica Argentina, Buenos Aires

April 20, 1918, 4, No. 32

82 Rôle of the Dispensary in the Campaign Against Tuberculosis. G. A. Alfaro and R. Iribarne.—p. 463.
83 *Thyroid Deficiency Inducing Congestions. J. C. M. Fournier.—p. 463.
84 *Gastric Ulcer plus Polyneuritis. C. B. Udaondo.—p. 465.
85 Teaching of Pediatrics in Medical Schools of Argentina and Europe. M. Acuña.—p. 471.

83. **Thyroid Deficiency of Congestive Type.**—Summarized, July 27, page 321, when published elsewhere.

84. **Gastric Ulcer with Polyneuritis.**—Udaondo's patient was a man of 45 who developed polyneuritis in the course of his florid gastric ulcer. The pains were worse when the gastric ulcer disturbances were most pronounced, and they subsided as the latter improved. Klippel and Weil reported in 1909 three cases of polyneuritis in the course of gastric ulcer, and others have been published since. The ulcers in all the cases had had a protracted course, and the spontaneous pains in the limbs and in muscles were irregularly intermittent. The nerves and muscles involved are sensitive to pressure and there may be some motor disturbance, to lax paralysis. The tendon reflexes are absent or much attenuated, but the muscles show no signs of atrophy, and as the ulcer heals the polyneuritis disappears.

Revista de Medicina y Cirugia, Havana

May 10, 1918, 23, No. 9

86 *Trachoma. C. E. Finlay.—p. 233
87 *Laryngeal Tuberculosis in Cuba. J. Aleman.—p. 238.
88 *Sarcoma in Nasopharynx. H. Segui.—p. 241.

86. **Trachoma.**—Finlay queries whether the different varieties of what is called trachoma in Cuba are different forms of a single disease or whether different diseases are not being grouped under this heading. He presents arguments on both sides, without coming to any conclusion although personally he inclines to the single theory.

87. **Laryngeal Tuberculosis in Cuba.**—Aleman found laryngeal tuberculosis in about 17 per cent. of 1,597 cases of tuberculosis examined during 1915. He cites statistics from the literature which show throat or nose lesions with pulmonary tuberculosis in from 13.8 to 97 per cent. This wide variation casts some doubt on the correctness of the observations.

88. **Sarcoma of the Nasopharynx.**—Segui comments on the grave prognosis of these tumors as they develop so insidiously that they are usually far advanced when a physician is consulted. In the two cases he reports, in men of 28 and 52, the younger man complained of headache and epistaxis, and a tumor was found filling the nasopharynx. He refused an operation and died in three months. There were no symptoms in the other case except the sensation of obstruction in the nose. The tumor filling the right nasopharynx was removed but the man returned six months later with intracranial propagation of the sarcoma, speedily fatal.

Revista de Medicina y Cirugia Practicas, Madrid

May 28, 1918, **120,** No. 1508

89 Treatment of Femoral Hernia through Inguinal Canal. J. Blanc y Fortacin.—p. 228.

Semana Medica, Buenos Aires

Dec. 20, 1917, **24,** No. 51

90 Tuberculous Glands in the Neck. C. R. Lavalle.—p. 685.
91 *Climatic Factors in Treatment of Tuberculosis. P. Galatoire.—p. 689.
92 Hygiene of the Eyes. P. B. Ferro.—p. 706.
93 *Cancer in Buenos Aires. E. R. Coni.—p. 711.
94 Welfare Work in Buenos Aires. E. R. Coni.—p. 714. Cont'n.

March 21, 1918, **25,** No. 12

95 Serotherapy and Vaccine Therapy in Various Diseases in Children. R. Cabrera and T. Scannavino.—p. 309.
96 Gastro-Intestinal Symptoms Masking Appendicitis. J. C. Berri.—p. 324.
97 *Necessity for Code of Medical Ethics. E. R. Coni.—p. 326.
98 Pseudo-Appendicitis as Manifestation of Serum Sickness. G. Giacobini.—p. 327.
99 The Campaign against Tuberculosis. C. Ferreira.—p. 327.

91. **Climatic Treatment of Tuberculosis.**—Galatoire's long review of the climatic factors and opportunities for treatment of tuberculosis in Argentina concludes with the statement that the mountain climate is unquestionably an important aid in the treatment of pulmonary tuberculosis, but that a patient should have it impressed on him that he must apply at once on arrival to some local physician. Constant medical oversight at first is indispensable. The measures recommended in his home town or the patient's usual customs, or the customs of an ordinary outing, may prove directly injurious if applied at a higher altitude.

93. **Cancer at Buenos Aires.**—Coni's statistics show that Buenos Aires with a cancer mortality of 8.55 per ten thousand inhabitants is the sixteenth in the list of twenty-four large cities, with Copenhagen and Berlin at the top, with cancer mortality of 16.13 and 13.35, and Chicago and New York the eighteenth and nineteenth, with 7.89 and 7.71.

97. **Code of Ethics.**—Coni relates that for years he has been lauding the Code of Ethics of the American Medical Association, urging that it be adopted officially by the Buenos Aires Medical Association and by the faculty of the medical school, but no steps have been taken as yet in the matter. He here repeats his urgent appeal, saying: "This Code of Ethics comes from the principal medical association of the continent of America, an authority the less to be suspected because it comes from an illustrious and friendly people, educated in the shade of institutions free like our own, and who know how to subordinate the liberty of the citizen to the principles of justice and honor, whatever his standing in the social order. It is not a new code which the American Medical Association has adopted; it is the conjunction of maxims and precepts recognized by eminent physicians the world around. It is only morally binding on the members of the Association, but they impose it on themselves as an undeclinable and inherent duty in the practice of their noble profession.

"The precepts which the American Medical Association makes obligatory on its members are equally morally obligatory on all physicians who appreciate their own dignity, respect the dignity of others and consider our profession a sacred trust, not merely a lucrative occupation. These precepts are based on sound principles of universal morality, justice, loyalty and consideration for one's neighbor, which are the same for all the peoples in the world." Coni adds that in his days as a medical student, he never heard any reference from the teachers to medical ethics, but since then one of the professors of legal medicine has included a few precepts of medical ethics in his course. The Academy of Medicine of Venezuela is discussing at present the adoption of a code of medical ethics, and it is rumored that when a satisfactory code has been drawn up, the central government will enforce it. Coni reiterates in conclusion that the time has come for something of the kind to be inaugurated in Argentina, as lately a certain number of physicians have stooped to practices which degrade the high character of the profession down to the level of a sordid business.

Kitasato Archives of Experimental Medicine, Tokyo

May, 1918, **2,** No. 1

100 *Action of Sensitized Cholera Vaccine. K. Shiga, R. Takano and S. Yabe.—p. 1. In German.
101 Cholera Sero-Vaccine. S. Yabe.—p. 13. In German.
102 The Processes of Immunization as They Occur in Subdural Cavity. R. Takano.—p. 43. In English.
103 Glycerinated Cattle Plague Vaccine. C. Kakizaki.—p. 59. In English.
104 Sensitized Plague Vaccine and Its Practical Application. T. Kitano and K. Sukegawa.—p. 67. In English.
105 Technic for Intravenous Injection of Small Animals. K. Shiga.—p. 87. In German.

100. **Sensitized Cholera Vaccine.**—The research on rabbits and guinea-pigs reported seems to show that the serum of a vaccinated animal has a protecting power when injected into another animal. It is readily and rapidly absorbed and induces only very weak reactions. When an animal is immunized by vaccination, the cells acquire a tendency to secrete antibodies. The essential active immunity is thus a cell phenomenon; the antibodies generated and passing into the blood are only a supplementary phenomenon to this.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

Aug. 31, 1917, **18,** No. 2, German Edition

106 *Causes of Action of Instilled Drugs on the Eye. N. Kumagai.—p. 103.
107 Absorption by the Cornea. N. Kumagai.—p. 161.
108 *Anemia with Aplastic Bone Marrow. T. Irisawa and K. Koga.—p. 179.
109 *Anaphylaxis with Serum Albumin. Y. Kato.—p. 195.
110 Antipepsin of Stomach Wall. K. Katayama.—p. 235.
111 *Peptic Disturbances in the Stomach. K. Katayama.—p. 253.
112 *Extrasystoles of the Auricle. S. Osato.—p. 265.

106. **Causes of Action of Instilled Fluids in the Eye.**—Kumagai determined the albumin content of the fluid and the pressure in the rabbit eye, and studied them in turn under the influence of atropin, of eserin, pilocarpin and epinephrin. He determined further that the aqueous humor seems to be derived from the iris.

108. **Anemia with Aplastic Marrow.**—The young man was robust, and except for two attacks of digestive disturbance in childhood and in 1913 seemed constantly well. Early in January, 1918, headache and lassitude, chills and vertigo compelled him to stay in bed, and he died in March. The necropsy findings confirmed the diagnosis of primary aplastic anemia. The color index increased above normal parallel to the progress of the disease, from 0.64 the second month to 1.73 the third month, just before death.

109. **Anaphylaxis with Serum Albumin.**—Kato has been studying means to deprive serum of its possible anaphylactic properties. The sensitizing and anaphylaxis-inducing power of the serum of a healthy horse was subjected to various tests, first separating out the different albumins in the serum and testing them separately, comparing the findings with the literature on the subject. Thirty experiments on guinea-pigs are described. When the latter were sensitized with any of the separate albumins from the serum, they reacted with phenomena of anaphylaxis to any of the albumins indiscriminately, but the reaction was strongest to the albumin used in the sensitizing. The water insoluble globulin seems the most active, the water soluble globulin next; the whole serum next, and the precipitate obtained with ammonium sulphate next.

111. **Gastric Ulcer in Japan.**—Katayama found open ulcer in the stomach in 4.3 per cent. and healed ulcer in 3.98 per cent. in 3,942 cadavers at Tokyo, Including 574 cadavers of

ıder 16. This is a total of 7.96 per cent. which is ɔportion than is recorded in European and Ameri- It is larger than the 5 per cent. credited to Eng- ermany, but is less than half of Denmark's 16.7 he gastric ulcer had been responsible for the death nty-seven of the total 314 ulcer cadavers. There nitant pulmonary tuberculosis in only 24.2 per sting thymus in seven; signs of syphilis in twenty- hypertrophy of the suprarenals in twenty-nine. rosis was evident in 45.26 per cent. and valvular 21.94 per cent. of the 3,942 cadavers, but the rela- tion was less in the ulcer cases. In a fourth of the vers there were multiple ulcerations. Males pre- in the ulcer cases, but stenosis of the pylorus was nly four of the 314 ulcer cadavers. The ulceration lly on the lesser curvature, next in frequency on ıs, fundus and corpus; the cardia and greater curva- rarely affected.

ıricular Extrasystoles.—The auricular extrasystoles ın of 68 seemed to start close to the sinus.

elingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 6

f Field Rat in Spread of Plague. L. Otten.—p. 1.
of Small House Rat. L. Otten.—p. 82.
n of Infectiousness of Indian Rat Flea. L. Otten.—p. 120.

Field Rat and Plague.—Otten devotes eighty pages ion of his investigations on the field rat and its ctors in the epidemiology of plague. Other writers ted negative results from such investigations, but ıation of 2,111 field rats showed fleas on 565, and than half of the fleas were of the cheopis species. rch indicates that the field rats get this flea from rats, but that this species dies off out of doors when c weather arrives. The ahalae flea is the regular flea that infests the field rat the year around. The is susceptible to plague, but Otten does not ascribe ɔortance to it in the spread of the plague from village ıge. He adds that the importance of human traffic in oadest sense of the term in the spread of plague, both and long distances, is confirmed anew by his research. ives thirty-five tables of his research in detail, and rks that the reason his findings differ from those pre- sly reported is probably because others have left the col- ıons of the field rats and their fleas to the natives, while n superintended every step of the work in person in ens of different villages. The article is in parallel columns Dutch and English.

115. **Duration of Infectiousness of Rat Flea.**—In connection ith the research mentioned in the preceding abstract, Otten ound that forty-three days was the longest period in which he rat flea was capable of transmitting plague. This long protracted infectiousness throws new light on the mode of transmission of the plague by means of human traffic.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 27, 1918, 1, No. 17

116 *Polycythemia with Heart Defect. K. A. Rombach.—p. 1144.
117 Tonsillectomy. I. J. van den Helm.—p. 1152.
118 *Amebiasis of Urinary Passages. S. Koster.—p. 1158.

May 4, 1918, 1, No. 18

119 *Cirrhosis of the Liver. N. P. van Spanje.—p. 1221.
120 *The Campaign against Tuberculosis. C. J. Brenkman and L. A. Faber, Jr.—p. 1240.
121 *Slow Sepsis. M. W. Scheltema.—p. 1242.

116. **Polycythemia with Heart Defect.**—The little girl over 4 years old had typical erythemia with cyanosis and enlargement of the spleen and hemoglobin of 140 or 150 per cent. (Sahli instrument). The reds numbered 7,608,000 to 6,000 whites. Roentgen examination showed that the whole heart was unusually far over on the left side, and that the pulmonary artery cast a protruding shadow, suggesting a patent duct of Botallo, confirmed by the electrocardiogram. Rombach theorizes that this defect prevents proper oxygenation of the blood. The imperfectly oxygenated blood stimulates the spleen to extra functioning, and this in turn has a stimulating action on the blood-producing organs, which explains the excessive numbers of red corpuscles. This assumption is sustained further by the numbers of "mast cells" in the blood. The child's sister of 21 also has high hemoglobin percentage, 105, and 4,664,000 reds, and the mother and the grandmother are said to have "looked blue" at times.

118. **Amebiasis of Urinary Passages.**—Koster has found fourteen cases of amebic cystitis or pyelitis on record. In the five bladder cases the symptoms were tenesmus and hematuria; Craig found at necropsy a rectovesical fistula in his case. The ameba in its vegetative form dies speedily in an acid medium; this aids in locating the focus in the bladder or pelvis according as the reaction is acid or alkaline. In a case described, the man of 44 had evidently been a chronic carrier of the ameba for nearly nine years after an attack of acute amebic dysentery in the tropics. Then came another acute attack, followed by pyelonephritis and then by cystitis. The ameba was responsible for both in turn. Under emetin, 0.03 gm. twice a day for five days, the urine was freed of amebas and cysts. The bladder had been given local treatment with silver nitrate, followed by acetate of lead, changing soon to 10 per cent. tannin, as tannin is said to have a specific action on the ameba.

119. **Cirrhosis of the Liver.**—Van Spanje relates that among the 52 men and 30 women in his service with cirrhosis of the liver, there were 9 of syphilitic and 8 of echinococcus origin. During the same period there were 143 men and 112 women with cancer of the liver. Including the gastric cancer cases, there were 296 men to 196 women in the cancer cases, although the women patients in general much predominated. Abuse of alcohol was evident in about 90 per cent. of the cirrhosis cases. Many had the habit of drinking liquor on an empty stomach in the morning. But in some of the cases alcohol could not be incriminated. The early complaints of loss of appetite, oppression in the abdomen, scanty urine and lassitude, do not point to the liver, but he was impressed with the fact that the beginning of trouble was so often stated to date from a period of severe grief or worry. In two of the cases of obscure origin the spleen was much enlarged, and its capsule had become thick and hard and adherent to the omentum and this to the abdominal wall. Nature had thus done omentopexy, but no favorable influence from it on the course of the disease could be detected, although, except for the absence of anemia, the case suggested Banti's disease.

Some cases ran their course without hemorrhage; in others there was fatal vomiting of blood, or melena, even before ascites had developed. In one man of 48 there was repeated and extensive bleeding from an artery in the cheek. One man of 53 had had two attacks of delirium tremens with an interval of sixteen years. The second attack was soon followed by hematemesis, the man vomiting about 5 liters of blood in four days. The liver and spleen were enlarged but there was no ascites till nearly five weeks later. In another case severe hematemesis was the first symptom; then came a latent period of eight years and then a fatal hematemesis. The liver was not palpable but there was urobilinuria. Necropsy revealed atrophic cirrhosis of the liver. In a number of the cases the cirrhosis of the liver was a necropsy surprise, the patient's complaints not having suggested liver trouble. Liver disease may rouse a slumbering tuberculous process; on the other hand, a tuberculous process may start or aggravate cirrhosis of the liver, especially when the tuberculosis is in the peritoneum.

The benefit from copious diuresis was illustrated repeatedly in his cases. In one elderly woman one drug after another was tried without effect, including digitalis, besides restriction of fluids and warm baths. But striking benefit followed a course of small doses of calomel, 25 mg. with 400 mg. milk sugar, three times a day. The output of urine increased from about 500 c.c. to 3 liters a day and then averaged under the calomel 1,800 c.c. In several cases discovery of the echinococcus, gallstones or syphilis permitted effectual treatment.

120. **The Campaign Against Tuberculosis.**—Brinkman and Faber deplore the lack of systematic cooperation between family physicians and the medical directors of sanatoriums.

The sanatoriums are filled with the tuberculous for whom there is no prospect of actual cure by this means, thus crowding out those who would really benefit by it. On the other hand, the precariously won benefit is lost in a few months after dismissal from the sanatorium and return to the former conditions of life.

121. **Slow Endocarditis or Slow Sepsis.**—Scheltema describes a case in a young woman which seemed to be of the slow endocarditis type as there were fever, anemia, enlargement of the spleen and progressive loss of flesh, pains in certain bones and the *Streptococcus viridans* in the blood. The whole syndrome had been ushered in with an attack of influenza. This sepsis lenta kept up with fever for 134 days. Scheltema was unable to determine whether the heart murmurs were the result of endocarditis or of the anemia, but their disappearance when the anemia subsided confirmed their comparatively harmless nature. The euphoria all through the case was remarkable, as also the early recovery of comparative strength when the patient got up after her 134 days of fever in bed. The onset of the fever had been slow and gradual; at first it was remittent and kept within moderate range, except during a period when there was involvement of the right sciatic nerve and an attack of periostitis. The temperature ran up to 41.4 C. during the neuritis and during the periostitis. Each lasted only a few days. Some red and tender spots developed on the legs and also petechial spots. His treatment was with methylene blue, 200 mg. in capsules three times a day, followed in an hour with a large dose of hexamethylenamin. The patient felt better under this treatment, and the temperature displayed a tendency to drop. When a gastro-enteritis developed, with high fever, this treatment was suspended. Then he gave iodin, 4 drops tincture of iodin in a glass of wine three times a day, followed an hour later with 0.5 gm. quinin in a wafer. The fever disappeared after three days of this, falling by lysis, and the patient felt that she was cured. The periostitis and the papulous red spots had subsided when painted with iodin—another reason for trying this drug internally.

Ugeskrift for Læger, Copenhagen

May 30, 1918, **80**, No. 22

122 Gibes at Physicians in the Classics. J. L. Heiberg.—p. 855.
123 *Dystrophy and Xerophthalmia in Infants. II. C. E. Bloch.—p. 868. Conclusion.
124 *Unit for Standardizing Digitalis Preparations. M. Krogh.—p. 874.
125 Strength and Keeping Properties of Digitalis Infusions. M. Krogh.—p. 875.

123. **Xerophthalmia and Dystrophy in Infants.**—The preceding instalments of Bloch's communication were summarized in these columns, July 27, p. 322. He here theorizes to explain the mechanism of the xerosis which developed among others in eleven children in an institution in his own charge, the infants being supposed to have an unexceptionable diet. Three factors seem to have been operative, a deficiency in fat in the diet, the period of extra growth, and the predisposing influence of a chronic infectious disease. His charts show a surprising concordance between the development of the eye trouble and the period of extra growth, that is, from March to August. From August to December is the period of minimal growth, and from December to March is the phase of moderate growth. These three periods of children's maximal, minimal and moderate growth were first determined by Malling-Hansen but they have been confirmed by others. The xerophthalmia in Bloch's sixty-three cases never developed during the minimal period of growth.

The three factors form a vicious circle: the lack of fat in the diet interferes with the proper development of the child and reduces its resisting power to infections while predisposing to xerosis of the conjunctivas and cornea. The xerosis develops predominantly among infants fed on separator milk, from which the lipoid elements have been centrifuged out, or if they get whole milk it has been boiled so thoroughly that the lipoid elements have been denatured. The reason why these disturbances are more common in Denmark than in other countries must be because Denmark is a dairy country, devoted to making and exporting butter. The xerophthalmia retrogresses at once, if irreparable lesions are not already installed, when fat is given the infants, especially cod liver oil, but also cream, butter, eggs or other foods containing the lipoid elements not denatured by long cooking. Xerophthalmia, he adds, is probably the main cause for the large number of blind children in Denmark. The cases of blindness of gonorrheal origin in infants are growing constantly less numerous.

124. **Standardization of Digitalis Preparations.**—Krogh suggests as the unit of physiologic action the lowest concentration of a digitalis preparation which arrests for one minute or more the spontaneous rhythm of the isolated heart of a frog.

Upsala Läkareförenings Förhandlingar

1917, **22**, No. 4

126 *Sensibility of the Bones to Pain. G. Nyström.—p. 237.
127 *Pain as Symptom of Fracture. G. Nyström.—p. 257.
128 *Nitrogen-Poor Diet in Nephritis. N. O. Nilsson.—p. 295.
129 *Ethylhydrocuprein (Optochin) in Pneumonia. A. Wallgren.—p. 308.

126. **Sensation of Pain by Bone.**—Nyström reviews what has been written on the sensibility of the skeleton, and describes experiences in thirteen cases of operations on bones in young and old of both sexes, including a case of sarcoma of the tibia in a girl of 9. He also experimented on himself, having a surgeon expose the tibia and bore into it at two points, above the middle, and again near the malleolus. His findings were constantly concordant, to the effect that the periosteum is richly supplied with pain nerves, but the bone tissue below seems to be entirely nonsensitive. The marrow has scanty pain nerves; the sensation from them is more an ache, and this is induced only by action over quite an area. A single prick is rarely felt. The cartilage of joints and the epiphyses are also free from pain nerves.

127. **Pain with Indirect Pressure as Symptom of Fracture.**—Nyström gives illustrations of the findings in 100 cases of fracture and several cases of sprains, etc., when the bones were pulled lengthwise or to the side or pushed in, and the resulting sensations compared with the roentgen findings. The soft parts share in the production of the pain, and the findings generally are not specific, but certain instructive points seem to be brought out by his research. Among them is that no pain was induced in this way when the fracture was not complete and there was merely a fissure or infraction. Also with a transverse fracture without dislocation of the stump. The absence of pain with these maneuvers thus does not exclude fracture, but testifies that it is incomplete or in a good position. Pain speaks in favor of a probable fracture when a long bone is involved. The bones of the hand and foot are generally painful on indirect pressure whatever the injury.

128. **Nitrogen-Poor Diet in Nephritis.**—Nilsson compares the experiences in this line at the University medical clinic at Upsala with recent literature on the diet in nephritis, including a number of American articles. His patients were given about 2,000 calories a day, with never over 40 gm. albumin, and usually less than this. This made it necessary to reduce milk to 50 gm. a day, but butter and sugar were allowed freely. The experiences are too few for a decisive judgment, and it is evident that the type of the nephritis determines the prognosis. At the same time, the parallelism between the rise and fall of the residual nitrogen in the blood and the aggravation and subsidence of severe symptoms, and the improvement in some of the cases as the residual nitrogen dropped while the former condition returned on resumption of nitrogen foods—all these suggest the advantage of a nitrogen-poor diet in renal disease. Close supervision is necessary, and care in preparation of the food to keep the appetite good.

129. **Ethylhydrocuprein (Optochin) in Pneumonia.**—Wallgren reports that the experiences in his nine cases were disappointing. Three of the patients died. He cites the figures from seventeen writers with a total of 268 cases in which the ethylhydrocuprein was given in the first three days, with 8 per cent. mortality and amblyopia in 7 per cent. In a further series of 134 cases the ethylhydrocuprein had not been given till after the third day. The mortality was 19 per cent. and amblyopia developed in 4 per cent.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 71, No. 6 — Chicago, Illinois — August 10, 1918

THE CASUALTIES OF WAR AND INDUSTRY AND THEIR RELATION TO ORTHOPEDIC SURGERY *

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With the entrance of our country into the great war, in which we are now involved, there has come a great and new emphasis on the importance of orthopedic surgery. Before our government had placed a regiment on the shores of Europe, even before it had made known its plans for raising its great army of citizen soldiers, we were made acquainted with the fact that it would demand the service of orthopedic surgeons in numbers much greater than were known to exist in the land. It is needless to say that its plans were not based on previous military experience of our country but on the results of three years' warfare among the European nations, both those with whom we are now allied and those with whom we are at present at war. The numbers of wounded have been quite unprecedented, the character of injuries and disablement which has prevailed, distressing beyond all previous human experience.

The call to activity of the orthopedic surgeon came, however, not by reason of either of these factors; it came because it has been found that in him and his peculiar training there lay hitherto unrealized possibilities for the preservation of function in the terribly shattered human frame. It became evident that the orthopedic surgeon was proving himself to be of conspicuous usefulness with his combination of superior mechanical skill and resourcefulness, together with general mastery of the technic of operative surgery. Without such combination we have, indeed, no orthopedic surgeon but merely an orthopedist. We shall not fail to remember that only a few years ago the term "orthopedist" was applied quite as freely to the man who made and sold braces as to the medical man who ordered them; that, not infrequently, mechanical appliances were fitted without professional advice. This was not always inappropriate; frequently the artisan knew more about them and their use than the physician. Many of us, in this day, do not know how large a rôle the skilled workman played in the development of orthopedic apparatus. Hessing, whose appliances have been so largely used by the Germans in times of peace, was not a graduate in medicine, but really a quack; the book published over his name shows clearly that however marvelous his mechanical aptitude, he was never an orthopedic surgeon. He was an orthopedist, however, and one such as could never be developed by the curriculum of a medical college.

There are quite a few among us in America who have a practical acquaintance with the Hessing types of apparatus as they were extensively used in Germany some years ago. We recognize that they were ingenious, exact in operation and very elegant in appearance; yet we, who are always so ready to adopt that which is mechanically attractive and purposeful, make practically no use of such appliances today. I believe that the reason for this is to be found in the fact that our professional background has become steadily more scientific and, by the measure of this, our methods more direct and simple; we are more concerned with the application of the principles of surgical pathology than with the elaboration of apparatus. It is a striking thing that our colleagues who are working in France have been able to respond to practically all of their needs in the way of mechanical appliances by means of six pieces of apparatus, as they may be modified to suit the various exigencies. Those who know the men will also know that this has not been done at the cost of efficiency. Let us take heed, therefore, and not fail to learn the lesson, for our greatest task is at hand. Let us realize that the fundamental thing about the orthopedic point of view is not that we shall possess superior knowledge in the application of mechanical methods, but rather that we shall be adept in utilizing the mechanics of physiology under conditions both normal and abnormal. From this, after all, must our mechanical methods of treatment be derived.

To my mind, there could be no greater mistake for the orthopedic surgeon than to find in the demand for large numbers of his kind the cause for self-congratulation by reason of the fact that recognition of his merit has become inevitable. On the contrary, he should be sobered by a sense of increased responsibility and should be impelled to inquire with a view to ascertaining the reasons and thus enable himself to respond most efficiently to his enlarged duties. Do we find an explanation of the need for an unusually large proportion of orthopedic surgeons in the Army in the large number of wounded, simply? Are the wounds of war so different from those of peace that we find in this the explanation? Has military practice brought forth methods of orthopedic surgery so different from those of peace that this must be considered the reason? Perhaps, with nothing but information at second hand and without any personal military experience, I am not qualified to make the inquiry and consequently surely unable to furnish the answer. I shall leave the decision open, to be finally made by those whose right to form it is beyond question. At the same time it seems to me that I can forestall it. From the information at hand I believe that however different the causes of injury in combat may be from those operative in industrial life and in times of peace, the results on the human organism can differ only in degree and in the conditions under which the surgeon must do his work. I dare say that there are few injuries of war whose prototypes have not been encountered for years by the surgeons of our large industrial establishments, even though in numbers small beyond comparison in consideration of the time unit. If this be true, perhaps it would be even fair to say that, to this extent, we have always been at war.

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* Address of the chairman of the Section on Orthopedic Surgery, read before the joint meeting of the Section on Orthopedic Surgery and the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

WORK OF THE ORTHOPEDIC SURGEON

From the recorded experience of our allies it is already evident that the work of the orthopedic surgeon has accomplished certain things which have established a new value for him in the eyes of military leaders. Through his work many wounded men have been returned to active military duty within a reasonable time, who under former conditions must have been relegated to civil life with their industrial usefulness impaired; thus have been saved to the government two losses. The one is a military loss, as complete as if death had resulted, and perhaps even greater since the burden of care must fall on the military establishment. The second may be spoken of as an economic loss by as much as it means a reduction of the productive activity of the nation; in consideration of the large numbers involved in present day warfare, it constitutes a very great economic loss.

To the members of this section I need say but little concerning that which constitutes modern orthopedic surgery; they, of all persons, should understand that it does not mean a system of practice, that it is neither operative, nonoperative, manipulative nor mechanical in its methods, but that it avails itself of all of these resources as the occasion demands. That which is characteristic of orthopedic surgery today is an especial and distinctive point of view. Sir Robert Jones has expressed this in epigrammatic form by saying that "the orthopedic mind thinks in terms of function." I am unable to refrain from quoting two additional sentences from his recent address before the Hunterian Society. He said:

> The pathetic side of an orthopedic center is the collection of physical disabilities which should never have been. The inspiring fact is, that in our experience, hardly a case is to be found to whom we cannot offer help.

Reflection will disclose that within these two short sentences are to be found the widest limits of our activities in cases of traumatic damage.

The justification of specialism can, however, never rest in what the specialist says he can do but in that which speaks for itself as an accomplishment. Neither is specialism in any department of human endeavor to have its *raison d'être* in the limited capacity of the specialist, if it is to mean much to humanity. Specialization in scientific fields is to be justified only as it constitutes an element of human progress. That it may do so implies that men of high ability will devote themselves to it and that they shall have the advantage of applying their talents to a field of limited extent only in order that it may be tilled with unusual care, that its problems may be studied without interference by that diffusion of interest which is necessarily associated with a great multiplicity of questions. One is to be a specialist, therefore, not in order to fit the task to an aptitude which is restricted, but rather to apply a larger vision to the solution of difficulties in a sphere which is narrowed for the sake of a greater efficiency, and not for any other reason. The success of special endeavor depends, therefore, on the measure of its particular efficiency. Men of distinguished ability are often led astray, however, by the temptation to widen unduly the compass of their labors and at the expense of thoroughness; they fall into the error of believing that their capacities are too great to be confined. The distinctiveness of the product of such a state of mind is far more likely to be quantitative than qualitative. Let us, therefore, not say to ourselves by preference, How many more things can we do? but rather, How much better can we do them? By as much as we can do them better, shall we prevail.

FUNDAMENTAL IDENTITY OF PROBLEMS CONCERNING WAR CRIPPLES AND PEACE CRIPPLES

The burden of my message, however, may be found in the fact that the sentences which I have quoted from Sir Robert Jones are pregnant with meaning, not simply in respect of the injuries of war, but likewise in respect of those of peace. Except as a compound comminuted fracture of the femur has been produced on the battlefield by bullet, shrapnel or shell, it does not materially differ from the one produced in railroad yard or steel mill, as concerns the prevention of deformity and the preservation of function, to begin with, or the correction of deformity and the restoration of usefulness when the primary indications have failed of being met. Unfortunately, both the pathos and the inspiration of Sir Robert's words are as apposite in industrial practice of peace times as they are in military experience, notwithstanding the disparity in numbers involved. The principles are the same; once a man has lost an extremity or has had it crippled, it does not matter how it happened; the possibilities of restoration to usefulness and the means of accomplishment are the same. In some respects the war cripple is, in fact, in advantage over the industrial cripple; he has the advantage of being a part of an exigent national problem, appalling by its magnitude but attractive by its patriotic appeal. The industrial cripple, on the other hand, is very likely to be looked on as the private concern of his employer, whether corporate or individual. The pity of it is that it has required the impulse of a world catastrophe to furnish the proper stress for these facts; they should have been commonplaces in every center of industrial activity in times of peace. But this has not been the case, save in exceptional instances. Immense effort has now to be made to provide curative workshops, equipment for physical therapy in its various forms, and a skilled personnel to operate them, as if these were peculiarly the needs of war times. This is true, however, only as concerns the greatness of the needs. We are plainly guilty of having neglected the means of physical and psychic reconstruction in our days of peace, and we now see the writing on the wall. Orthopedic surgery has been held within too narrow limits, but we are now compelled to recognize the fact that this has had the effect of making the surgeon himself too contracted in his outlook.

The call is for us to meet the emergency of the appalling situation of war, first of all and by all means. We must not rest content with this, however; we must emerge from the world conflagration as orthopedic surgeons with the broadest outlook, and we must look on the lessons learned in the reconstruction and rehabilitation of maimed soldiers as a heritage to be passed on to the coming generation of our profession and our people at large, but also to be incorporated at once into the service of those whose sacrifices have been made in the peaceful, but nevertheless relentless, combat of industrial enterprise and production. Not until this has been done shall we have responded to our duty in an adequate manner.

THE FREQUENCY OF PULMONARY COMPRESSION SIGNS IN ACUTE FIBRINOUS PERICARDITIS *

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In books on physical diagnosis, attention frequently is called to dulness and bronchial breathing in an area of varying size in the left back just in the region of the angle of the scapula or below it as an accompaniment of pericardial effusion. For example, Musser,[1] under the heading of "Pericardial Effusion," says:

> Pulmonary resonance is modified posteriorly. At the angle of the scapula is a small area of dulness, increased vocal fremitus and bronchovesicular and bronchial breathing when the patient is sitting upright, which disappears when he leans forward (Bamberger's sign). The dulness in large effusion includes the axillary region so that it may simulate pneumonia or pleural effusion.

Roberts[2] thus discusses these pulmonary signs in pericardial effusion:

> In considerable pericardial effusion, the condition of the left lung may give rise to a definite group of signs at the back of the chest on that side; namely, a limited area of deficient resonance or actual dulness, about the size of a crown piece, generally localized in the vicinity of the angle of the scapula with increased vocal fremitus, bronchial or tubular breathing, and bronchophony or egophony. Sansom regarded these as valuable signs in children and young subjects. I have in a few instances noted them in older persons, in a pronounced degree. Dr. Ewart attaches special diagnostic importance to a patch of marked dulness at the left inner base, which he described as of square shape with abrupt boundaries, extending for a variable distance from the spine outward and upward, but limited. Over the dull patch respiratory sounds are absent and voice sounds feeble.

Robey,[3] in discussing fluid in the pericardial sac, says:

> In these cases *almost all* authors, Billings, Babcock, J. Mackenzie, Cabot, Musser, Parkinson, call attention to a small area of dulness in the left back just inside the angle of the scapula, described by Ewart and produced by mechanical atelectasis of the compressed lung.

These various authors seem to lay emphasis on the pulmonary signs described by them as indicating very considerable amounts of fluid in the pericardium. The writings indicate that the signs are found chiefly in patients who would be diagnosed as having pericarditis with effusion. In my own experience I have been struck with the very great frequency of occurrence of abnormal physical signs in the left lower lobe of the lung in cases which ordinarily would be diagnosed as cases of acute or fibrinous pericarditis because of the presence of a to and fro friction rub over the precordium.

In my wards at the Peter Bent Brigham Hospital I have had opportunity to observe fifty-three patients, almost all adults and some elderly, in whom, among others, the diagnosis of acute pericarditis was made because of an audible pericardial friction rub. Of these fifty-three patients, thirty-nine, or 73.5 per cent., showed abnormal physical signs indicating some sort of a pathologic condition in the left lower back. These were not patients with signs indicating extensive pericardial effusion, but rather, so far as signs over the precordial area go, probably patients with fibrinous exudate, at least over the anterior part of the pericardial sac. Seventeen of the thirty-nine patients showing pulmonary signs had acute articular rheumatism on admission or had had an attack a very short time before admission.

As an example of the occurrence of these compression signs, Case 1 will serve:

Case 1 (P. B. B. H. Med. No. 1159).—A woman, aged 48, was admitted to the hospital, May 5, with a history of acute rheumatism beginning one week prior to that time. On admission her heart was essentially normal and her lungs were normal. May 14, she had a recurrence of acute rheumatism. May 19, a slight pericardial friction rub was detected over the precordium. By May 25 this friction rub had become very distinct. June 2, the pulse suggested partial heart block. June 8, there was made out at the left back below the angle of the scapula moderate dulness with distinct bronchial breathing. *Three days later bronchial breathing at the left* base was loud and there was distinct bronchophony. By June 9 these pulmonary signs had entirely disappeared. During the period of the rheumatism, the patient's temperature fluctuated between 100 and 102 F. During the period of development of the pericarditis and of the signs at the left base, the temperature fluctuated from normal up to 100, from which point it gradually fell to normal; but the change in temperature was at no time sudden, such as might be expected from a consolidation ending by crisis.

When the physical signs are more extensive, the difficulty of making a diagnosis is increased, as is shown in Case 2:

Case 2 (P. B. B. H. Med. No. 2201).—A man, aged 20, admitted, January 20, with a history of developing rheumatism three days before he came in, was found on admission to have normal heart and lungs. January 23, there was a suggestive pericardial friction sound, and the area of cardiac dulness was slightly increased. The pericardial friction rub became much more definite, January 26. Jaunary 28, roentgenoscopy revealed only a moderate degree of cardiac enlargement, and no pulmonary lesion. January 29, pericardial friction sounds had disappeared. February 3, dulness and bronchial breathing were noted in the left back from the spine of the scapula to the base, and in the left axilla below the fourth rib. The observer interpreted these as compression signs. Another observer on the same day interpreted the findings as consolidation in the left lower lobe. A little later, *on the same day*, bronchial breathing was noted in the entire distribution of the left lower lobe, including that portion of the lung that lies over the lower outer quadrant of the precordium. The finding of this very extensive consolidation coming well over the precordium indicated to this observer that there was an actual *consolidation rather than simply* compression. Two days later the dulness and bronchial breathing persisted over the lower back as well as over the precordium. On this day the left chest was tapped in several places to see if any fluid could be obtained. All of the tappings were negative. On the next day in the left back dulness was found from the middle of the scapula to the base. Over the upper part of the dull area there was distinct bronchial breathing for from 2 to 3 cm., then a rapid decrease to distant and finally practically absent breath sounds. Two days later the signs in the left back were noticed to be decreasing, and during this period the temperature gradually fell to normal. By February 11 the signs in the left back had decreased so that there was remaining only a small area of intense bronchial breathing just below the level of the angle of the left scapula with rather suppressed breath sounds generally throughout the back. During most of these observations no râles were heard in the left lower back. February 13, another roentgenogram of the chest disclosed nothing to indicate fluid or pneumonic consolidation on either side. March 1, the patient complained of pain in the left side, and a slight friction rub was heard. The next day, on the right side low down in the back there was dulness to flatness with markedly decreased breath sounds, absent tactile fremitus, and the voice sounds had a nasal quality. Roentgen examination of the chest revealed the signs of a moderate amount of fluid on the right side. Two days later 300 c.c. of fluid were withdrawn from the right chest. Following this the signs in both backs gradually cleared up, and no abnormal pulmonary signs were made out subsequently during a prolonged stay in the hospital.

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* From the Medical Clinic of the Peter Bent Brigham Hospital.

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Musser: Practical Treatise on Medical Diagnosis for Students and Physicians, Philadelphia, Lea and Febiger, *1913, p. 615.*

[2] Roberts, in Allbutt and Rolleston: System of Medicine, New York, the Macmillan Company, 1909, **6**, 61.

[3] Robey, W. H., Jr.: Acute Pericarditis, Am. Jour. Med. Sc., 1917, **153**, 529.

In this case, during part of the time at least, it seemed probable that there was actual consolidation of the left lower lobe. However, the patient ran the same course as others in which the pulmonary signs were regarded as due to compression.

Another example is afforded by Case 3:

Case 3 (P. B. B. H. Med. No. 3799).—A woman, aged 40, began to have rheumatic pains four days before admission. When she came in there was a pericardial friction rub audible over the precordium, and slight dulness at the left base of the lung. Two days later the dulness at the left base was more marked, though not more extensive, and over it bronchovesicular breathing was heard and there was a slight nasal twang to the whispered voice sounds. Ten days later the dulness was still present, and there was the same quality to breath and voice sounds over the left lower back. Two days later it is described as being a practically flat percussion note from the midscapula to the base on the left, with distinct bronchial breathing and bronchophony but no râles. This area extended to but did not occupy the axillary region. Three days later the dulness had increased and breath and voice sounds had become somewhat distant, suggesting fluid in the left chest. A trocar was introduced, and 300 c.c. of fluid were withdrawn. After withdrawal of the fluid, the dulness decreased; but the bronchial character to the breath sounds persisted. During all this time the pericardial friction persisted, and three weeks later it was still present and the pulmonary signs on the left remained as previously described. Ten days later the pericardial friction had disappeared, and the pulmonary signs were gradually decreasing.

Here there was demonstrated pleural fluid in moderate quantity; but its removal did not greatly alter the physical signs, and it seemed as if in addition to the fluid there was some other cause for most of the physical signs described above.

In another patient very similar conditions existed:

Case 4 (P. B. B. H. Med. No. 6225).—A woman, aged 62, entered the hospital, February 28, with chronic nephritis. March 15, she developed a to and fro friction rub over the precordium and showed slight dulness over the left lower back, with distinct bronchial breathing over part of the dull area. Two days later the pericardial friction rub was loud and there were both bronchial breathing and bronchophony in the left lower back. The following day she died and necropsy revealed acute pericarditis with a slight excess of pericardial fluid. In the left pleural cavity there were 300 c.c. of fluid, and the left lower lobe of the lung showed atelectasis.

Here pleural fluid without doubt contributed to the pulmonary signs in the back, but atelectasis was more marked than one ordinarily encounters with that amount of pleural fluid. Still in this particular case there was but little pericardial fluid at the time of death.

The physical signs in these cases have varied much. In some the dulness is slight, in others well marked; usually it is distinct, and if small in area, occupies the region just about the angle of the scapula. When more extensive, it occupies the lower one third to one half of the back; but as a rule it does not occupy much of the axillary region. Over the dull area in part or in the whole there is bronchial breathing of varying intensity and bronchophony. Râles are usually not present.

EXPLANATION OF THE PHENOMENA

What causes these pulmonary signs with acute pericarditis? Their great frequency in this group of cases indicates a causal relationship. That the signs described above are nearly always on the left and rarely found on the right suggests that they are related to the heart in some direct way. Two explanations offer themselves: one, that a distended pericardial sac presses on the lung and causes compression signs; the other, that an inflammatory process extends from the pericardium to the adjacent pleura or lung and leads to changes there responsible for the pulmonary signs.

In most of our cases the heart outline was not greatly increased in size, and the pericardial layers were in contact, at least in front, as shown by the to and fro friction rub. The pulmonary signs here described are not common with cardiac hypertrophy and dilatation unaccompanied by pericarditis, even when the size of the heart is very great. Williamson[4] has emphasized the early appearance of fluid about the apex and behind the heart in pericardial effusion a position in which pressure would be exerted readily on the lower left lobe of the lung; and this suggests a possible reason for pressure on the lung from a distended pericardium with a friction rub heard over the precordium. However, in the necropsy cited, only a little excess of fluid was present in the pericardial sac, and this was true in a second necropsy.

In none of our cases with these signs was there clinical evidence of extensive pericardial effusion. In a few cases the attempt was made to tap the pericardium, but no fluid was obtained. Consequently it would seem that these pulmonary signs may occur when there is no excessive amount of pericardial fluid and so no very great mechanical pressure from the heart and pericardium of this origin. If they result from pressure, the element of quick development of dilatation of the pericardial sac and especially of the posterior portion must be an important element.

On the other hand, in several cases we have obtained small but never large amounts of fluid from the left pleural cavity during life, or found it at death in the few fatal cases; but in other cases no fluid could be demonstrated by puncture. The finding of pleural fluid suggests an extension of the inflammatory process to the pleura, with a moderate pleural exudate causing pressure on the lung or possibly leading to consolidation of the lung. In the necropsy just cited, atelectasis of the left lower lobe of the lung was found. As we have seen the cases, the pulmonary physical signs clear up gradually while the temperature curve gradu-

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4. Williamson: The Medical Clinics of Chicago, March, 1917, p. 937.

ally declines as the signs of pericarditis disappear. Moreover, those pulmonary signs seem to have little influence on the course of the disease. Often they occur when the patients are not very sick and do not influence to any extent the respiratory rate. Most of the patients recover except those in whom the pericarditis is more or less a terminal event in some chronic disease. All of this is against an ordinary pneumonic consolidation. Perhaps both factors are present—there is pressure from a distended pericardium or pleural fluid or both, and some inflammatory change within the lung accentuates the effect and causes the physical signs, when under other circumstances equal pressure from an enlarged heart or pleural effusion does not lead to similar signs.

Whatever the explanation, dulness, bronchial breathing and bronchophony over the left lower back are very common accompaniments of acute pericarditis, and in our experience when found suggest acute pericarditis even though at the time of the observation no pericardial friction rub is detectable. In a few cases we have made this tentative diagnosis, and in a few days have heard the pericardial friction rub develop as confirmatory of our opinion. In our experience, these signs do not indicate necessarily any large amount of pericardial fluid nor call for any attempt to tap the pericardium to withdraw fluid.

SUMMARY

In a large percentage of patients with acute pericarditis (thirty-nine, or 73.5 per cent. of fifty-three patients observed), definite physical signs are found in the left lower back. These are dulness of varying extent and usually bronchial breathing and bronchophony. The signs appear to be the result of compression of pulmonary tissue, that is, atelectasis of the left lower lobe. Moderate amounts of pleural fluid are often demonstrated. Compression either from the heart and pericardium or from the pleural fluid or from both appears to be the main cause. Intrapulmonary changes of an inflammatory nature may play a part, but this is not proved. The frequency of the occurrence of these signs and their localization on the left point to some causal relationship to the acute pericarditis. The pulmonary signs exert little influence on the course of the disease and the prognosis. Almost all of the patients recover, except those in whom the pericarditis is more or less a terminal event in some chronic condition.

ABSTRACT OF DISCUSSION

Dr. William H. Robey, Jr., *Boston:* Sir James Mackenzie states in his book that on one or two occasions he has tapped in this posterior area which Dr. Christian mentioned, supposing that he was dealing with a pleural effusion. Later, from the relief in cardiac signs, he was convinced that he had aspirated a posterior cardiac effusion. In one case which I found in the literature these signs were present near the angle of the left scapula. Pericarditis with effusion had been suspected, but on aspirating the sac in the anterior areas usually selected for aspiration, no fluid was obtained, still the symptoms indicated that fluid was present. Aspirating near the angle of the scapula brought forth 400 c.c. of seropurulent fluid. Four or five days later, there still being cardiac distress, aspiration was again attempted and 600 c.c. of seropurulent fluid were removed.

It is surprising how much fluid the pericardial sac can hold. Cases have been reported in which as much as 3,500 and 4,000 c.c. have been found in the sac. In a case which we had in the Boston City Hospital there was very evident cardiac distress, but there was also a left pleural effusion. The patient was a child, 11 years old, with hydrothorax, and with very marked cardiac symptoms, dyspnea, breathlessness, orthopnea. On tapping in the axillary median line evacuated some fluid, but very little relief was obtained from the cardiac distress. Tapping again in the same area, and pushing the needle forward, a large amount of bloody fluid was obtained, and the patient had almost immediate cessation of the cardiac symptoms. What we did was to go unwittingly into the pericardial sac on the second aspiration, causing cessation of the symptoms.

The cases which are apt to mislead us are those in which the heart is pushed forward against the chest so that there is no diminution in the sounds, and we feel the cardiac impulse against the chest wall with considerable force. In one case the sounds were so prominent we were doubtful of the presence of fluid, but the roentgen ray showed a steadily increasing cardiac area, and aspiration removed 150 c.c. of fluid. Of course, if you get any fluid on aspiration, it means that there is an increase in the amount, because the 50 c.c. which the sac normally contains for lubrication is so evenly distributed in the pericardial sac that it cannot be obtained unless the sac is distended.

Another point: In these early cases the patients will give no indication, such as pain. In only 25 per cent. of the cases of fibrinous pericarditis is pain a symptom. I know that this is at variance with the experience of many clinicians. Possibly, the reason is because quite a number of the cases occur in the course of pneumonia, and the patient is so ill and so often suffering from pain in the chest due to the pneumonia that the pericardial pain is overlooked; but in some of the worst cases of purulent pericarditis that I have seen, and which I have followed from their inception, there was no pain at any time. Pain, if it does occur, is apt to be present very early in the disease when the sac begins to be distended. Of course, if there is a fibrinous rub, an indication of fibrinous pericarditis, that may be the only sign elicited that fluid is accumulating, but, as Dr. Christian says, in cases in the rheumatic group the effusion is apt to quiet down, and Dr. Chapin says he has never had occasion to aspirate the sac.

Dr. H. D'Arcy Power, San Francisco: As I understand, the principal question brought up by Dr. Christian is the pathogenesis of the symptom of dulness over the base of the left lung occurring in many cases of pericarditis, and, seemingly, the amount of necropsy evidence is not very large. That is the reason it is well to give the necropsy findings in one undoubted case of this type. Some time ago I reported four cases of chronic nephritis of the so-called Rose-Bradford type. One of the patients died and three or four days before death the symptoms referred to by Dr. Christian were very marked; that is, on first seeing this case, there was a distinct pericardial friction rub and a distinct area of left basal dulness, with the usual signs of consolidation. At necropsy there was entire absence of any consolidation in the lung. The lung was in the state of passive hyperemia and slightly edematous. The heart had great left ventricular hypertrophy, but, nevertheless, it was a small heart, and there was only a little fluid in the pericardium, though there was sufficient evidence of the pericarditis to account for the physical signs. The case is valuable because it is clear that the pulmonary condition was not due to pericardial compression from fluid in the pericardium, nor was it due to any enlargement of the heart itself. There must be some other factor which we must seek for to account for this frequent left-sided pulmonary dulness in pericarditis. I have met with it frequently, but this was the only occasion I have had to check the diagnosis by necropsy.

Dr. Frank B. Wynn, Indianapolis: The cases reported by Dr. Christian suggest the etiology from the rheumatic standpoint—a clear history of rheumatism, followed by friction rub and such physical signs as would ordinarily be expected in pericarditis. I assume, from what he stated and the other speakers said, that the opinion generally held is that pericarditis arises from infection through diseased tonsils and bad teeth, contaminating the blood stream, and so the pericardium becomes infected. More frequently than is generally supposed, pericarditis arises from contiguity of infection in the pulmonic and pleural tissues. In turbeculosis of the lungs and pleura, especially in children, the necropsy often reveals extension to the pericardium. Pericarditis is of much more frequent occurrence than we have been taught to believe. In the postmortem room one is impressed by the frequency with which white spots are observed over the parietal pericardium, indicating pericarditis during life.

Dr. George D. Head, Minneapolis: I have been struggling during the last winter with three of these cases which Dr. Christian has described. There are many difficulties which confuse the determination of the actual condition existing in the lung, in the left pleura and in the pericardium. The absence of fluid in the left pleural cavity as revealed by the exploring needle and the absence of the signs of fluid in the pericardium and the presence of well-marked signs of dulness and tubular breathing in the base of the left lung, leaves one with the impression that a consolidation of the lung exists. Necropsy experience, however, clearly indicates that this is not the case, in many cases. Inasmuch as the patients rarely die, one does not have an opportunity of confirming the diagnosis by postmortem examination. In none of the cases which I have had an opportunity of studying has death occurred. I would like to ask Dr. Christian whether postmortem evidence in the two fatal cases which he reports showed a large fibrinous exudate in the pericardium, without evidence of fluid, and whether, in his opinion, in any of these cases the signs exhibited in the left lower lung posteriorly were caused by pressure symptoms produced by a pericardial sac distended by a fibrinous exudate. I should like to know whether the necropsy findings in Dr. Christian's cases revealed the presence of a large fibrinous exudate in the pericardium.

Dr. Lawrence Litchfield, Pittsburgh: Unless I am mistaken, you are going to learn more about pericarditis than ever before. If you take the conditions we have had at the base hospitals as an indication of what you are going to have in civil practice, you are going to have a lot of these streptococcus cases of pericarditis, serous, serofibrinous and purulent. The question of tapping the pericardium is an interesting one. I have seen many cases of streptococcus empyema, many of them with pericardial effusion, and the varieties of the pocketing of the fluid—in different parts of the pericardium, in the pleura overlying the pericardium, and beneath the anterior lappet of the lung at the side of the pericardium, and behind the pericardium—make it so enigmatical that I do not feel you can be absolutely certain in any given case whether you are in the pericardium or not. I did feel much more confidence until in a recent case we got pus by needle in an empyema overlying the pericardium, and diagnosed pyopericardium, yet the operation showed this pus to be in the pleura, while postmortem showed that there was also considerable fluid in the pericardium, but serofibrinous. It seems to me that the greatest aid we have in determining the presence and location of fluid is the most careful, systematic and oft-repeated fluoroscopy of all these cases. We at Camp Lee would feel that we were almost hopelessly crippled if you took away our fluoroscope. All our doubtful chest cases are fluoroscoped, and fluoroscoped repeatedly, in both horizontal and upright positions, when possible, and at all possible angles of obliquity. I know of no other method of investigation which has added so much to our knowledge of these cases. Fatal cases have been roentgenographed postmortem also, and fluoroscopic and plate findings studied by the light of the necropsy findings.

Dr. Granville Ryan, Des Moines: In a limited number of cases the fluoroscope has been a wonderful aid in determining whether empyema was present or whether it was a case of lung abscess or of pericarditis with effusion. Major Miller of Camp Dodge called my attention to the great value of the fluoroscope, and of percussing the patient in the upright position. The fluid can be seen very plainly. In a number of these cases we have found a beginning pericarditis associated with or following acute rheumatism, with a hypostatic condition of the lower lobe of the left lung. By getting a good roentgenogram we found a marked shadow in the lower lobe of the left lung, and by giving the patient expectant treatment the lung cleared up and the pericarditis cleared up largely within a very short time as the symptoms of the rheumatism cleared up.

It has been my observation that many of these cases of pericarditis have followed acute infections of the throat. I feel that many men have made a mistake in overlooking the streptococcus infection of the throat or passing it by lightly.

Dr. Henry A. Christian, Boston: I want to emphasize the good prognosis in these cases. From physical signs the outlook is pretty serious—the patient has an acute infection of the pericardium, there are physical signs in the lungs that, off-hand, suggest pneumonia. Almost all of the patients get well, and you need not worry very much about the outlook. I have not included any cases of pneumonia and empyema in this group I have reported, but have dealt with those cases which begin as acute infections and have signs, as far as we can judge, of pericardial exudation. I realize the great difficulty of localizing fluid, especially in connection with the typical types of pneumonia and the frequency with which these types of infection are accompanied with trouble in the pericardium; but these cases are not included in this group, and there is no reason to suppose that in the cases I reported empyema or pneumonia was present, except for the physical signs. The fact that these patients get well without tapping, without any particular treatment, except for their rheumatism, is strong evidence against their having empyema and fairly good evidence against their having ordinary pneumonia. Roentgen-ray studies in these cases have not given very much information. The physical signs are behind the heart shadow, and in rotating the body to get a better view you get tangled up with the shadow of the vertebral column and you do not get a very good picture. The roentgen ray has not helped us much in detecting fluid in the pericardial sac. The roentgenologist diagnoses its presence from the silhouette of the heart. In my experience there usually is no fluid. My reason for saying that is that those particular cases diagnosed as pericardial effusion by the roentgenologist often terminate fatally, and at necropsy you do not find fluid. I have a number of such cases recorded. Pericardial effusion, in my experience, in the sense of fluid being present in sufficient amount to embarrass the heart and need tapping, is an unusual condition. In the last five years we have successfully tapped the pericardium twice, once in a child with pus. The patient died the next day, and necropsy showed that, although we had gotten a considerable amount of pus out, we had also left some behind. The other case was one of pericardial effusion in which we at one time removed 600 c.c. of fluid. The second time we removed 400 c.c. of fluid. The patient died two months later. Necropsy showed some chronic change in the pericardium with no recurrence of the fluid. Neither of these cases with the large amount of fluid showed these pulmonary signs of compression. Why, I do not know.

Now, you may say, we miss a great many cases of pericardial effusion. Perhaps we do. If these cases that I have reported have pericardial effusion, they have it in insufficient amount to require tapping. Against the fact that we miss many cases where pericardial effusion is an important factor in the condition of the patient is the fact that we have averaged necropsies in 60 per cent of our fatal cases, and no case has turned up with considerable pericardial effusion, except in the two I have referred to, and they were discovered during life. So that the number of cases with fluid requiring tapping is very small. It is an unusual condition to have fluid in the pericardium of adults that requires tapping, and there is no reason to tap the cases such as I have described; in fact, there is no reason to worry about them, because at the time these patients do not look sick, and almost all of them get well. What the infection is I do not know. I have given some suggestions as to what the pathology is. Those are only suggestions, because we have had necropsies in only two cases. They showed atelectasis without any considerable amount of fluid in the pericardial sac or in the pleural sac. The exudate was fibrinous with a very moderate amount of fluid.

Lice on Flies.—The *Hospitalstidende* quotes a German writer to the effect that human body lice have been repeatedly found clinging to the bodies of ordinary house flies.

PUS IN THE FEMALE PELVIS

A SURGICAL RETROSPECT *

JOHN YOUNG BROWN, M.D.
ST. LOUIS

In 1877, Mr. Tait published a series of papers recording his observations on the etiology, pathology and treatment of ascending infections of the uterus and adnexa. For many years following his teachings, then considered revolutionary, a most bitter controversy ensued. He was subjected to the severest criticism and abuse. In England and on the continent, as well as in America, the profession was divided, many men rallying to the teachings of the Birmingham School of Gynecology and many others fiercely opposing them. At the International Medical Congress in 1881, Sir Spencer Wells, in a bitter attack on Mr. Tait, made the statement that he had seen only one case of pus tubes and that he supposed they all went to Birmingham.

As time went on, Mr. Tait and his pupils demonstrated conclusively the fact that pyosalpinx was due to an ascending infection and that cellulitis, parametritis and perimetritis were, with rare exception, secondary to infections of the tubes. It was also conclusively demonstrated that such conditions were susceptible to radical surgical relief.

In this country, under the leadership of the late Joseph Price of Philadelphia, a similar battle was waged. To Price, more than to any one man in America, is due the credit of having placed pelvic surgery on a sound and substantial basis.

MANY RECOVERIES WITHOUT SURGICAL AID

A review of the literature of the last thirty years on the treatment of pus in the female pelvis will show that the pendulum has frequently swung from extreme radicalism to ridiculous conservatism. All must admit that in the early days of this work, tubes and ovaries, which are so essential to the health of women, were sacrificed by the thousands. This, however, was in no sense due to the teachings of Tait or his pupils. In one of his works,[1] he states it to be his belief that many cases of acute inflammation of the uterine appendages end in complete recovery, and he further states that there can be equally no doubt that a very large number of them do end in this way.

> But these are not the cases that are seen by the specialist. The patients who come to us are chiefly those who have recovered from the acute stage and passed into a condition of chronic invalidism. This class includes those who suffer from chronic ovaritis, chronic salpingitis, even simple adhesions of these organs, and who are always worse still if the adhesions are complicated by occlusion of the fallopian tubes and their distention, either by serum or by pus or by bloody fluid; and any man who has run through a long experience of general practice may easily call to mind fifteen or twenty cases of the kind that he has seen, all of which ended under his care in apparent recovery: That is, the acute stage passes off and the patients rise from their beds, after a more or less prolonged convalescence. But he does not see these twenty cases ten or twelve years afterward. Those of them in whom the damage has been sufficiently great to cause prolonged suffering, seek relief from the specialist at the hospital or in his consulting-room; and therefore it is that the shield concerning which so much discussion has arisen is found to have both a gold and a silver side, and has to be looked at from both sides before a reasonable understanding can be arrived at.

WATCHFUL WAITING VERSUS OPERATION

After all, the treatment to be applied to any given case of purulent salpingitis must be left to the judgment of the surgeon in charge. It has been clearly established that general peritonitis following salpingitis is an exceedingly rare occurrence. It has also been clearly proved that in 98 per cent. of these cases, the acute condition will subside if the patient is given a rest in bed and proper medical attention. It is, therefore, safe in all cases to practice watchful waiting and to govern future operative treatment by the conditions present after the acute inflammation has become tranquil. It has also been demonstrated that such patients may be operated on with safety during an acute attack. In view, however, of the fact that many of them recover completely without operation, it is unwise to operate at this stage, as such work would, in all probability, lead to unnecessary sacrifice of the tubes and ovaries, which, if left alone, would be restored to usefulness by nature. In those cases in which acute exacerbations of chronic pelvic inflammation occur and in which the uterus is fixed and the adnexa are tightly bound down by old adhesions, it is wiser to defer operation until they become quiescent.

Dr. F. F. Simpson of Pittsburgh, in a paper read before the American Gynecological Association, advocated that all such patients should be put to bed and that no operative work should be done until they had been free from high temperature for three weeks. Dr. J. G. Clark of Philadelphia, has pointed out the impossibility of carrying out this procedure in the average hospital case. While admitting the wisdom of Dr. Simpson's contention, he urges earlier interference.

I cannot persuade myself to believe that tubo-ovarian abscess with multiple abscesses and strictures in the fallopian tubes can be relieved by any operation short of radical removal. Cases have been reported by most competent observers in which these conditions are relieved by baking, tamponing, curetting, hot douching, and similar conservative methods of treatment. Apostoli and his pupils reported many cases of fibroids cured by electricity, but we hear nothing of this treatment today. If gynecologists are able to cure such patients by treatment of this type, they are not the type of cases that come under my care. Neither do I believe that such patients can be cured by vaginal drainage or that most unsurgical procedure, rectal drainage.

A study of the tissues removed from the type of patient that is now subject to radical operation will demonstrate this conclusively. Incomplete work is responsible for an immense amount of suffering. I heartily agree with Mr. Tait when he says, "I am quite certain now that in the hands of a competent operator there are no adhesions of the uterine appendages which cannot be overcome, and no case ought to be left unfinished. Incomplete operations are the opprobrium of abdominal surgery, and operators ought to be more discredited by them than by anything else."

It is unnecessary before an audience of this type to discuss the technical details involved in the handling of such conditions. Each case is a law unto itself and the surgeon must adjust his work to meet conditions.

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* Read before the Section on Obstetrics and Gynecology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Tait, Lawson: Diseases of Women and Abdominal Surgery, Philadelphia, 1889, p. 377.

DRAINAGE

There are certain points relative to drainage to which attention may well be called, as the outcome depends largely on the proper application of a drain. After the operator separates the adhesions and removes large and inflamed pus tubes, whether the operation be removal of the adnexa or a hysterectomy, the culdesac is left denuded. We were taught by Price the value of the coffer dam drain. Dr. Coffey of Portland, Ore., a few years ago in a paper read before this Association, elaborated on the technic of applying this drain. With slight change in detail the method of Coffey is almost identical with that of Price. When the pathologic condition has been removed and all angulations of the small bowel have been separated and denuded surfaces have been covered, with the patient in the Trendelenburg posture, the intestines are lifted up out of the culdesac. Gauze tape about 36 inches in length is now placed from right to left, filling the culdesac and covering all raw areas. The end of the gauze is brought out at the lower angle of the wound and slipped through a very thin rubber tube. The wound is then closed in the usual manner.

A properly adjusted drain of this type, I am confident, will prevent many cases of postoperative ileus. Such drains can be removed without difficulty, and while an occasional hernia may result from their use, the clean convalescence of patients who have received a peritoneal toilet of this type more than offsets this objection.

CONCLUSIONS

1. Many patients with acute salpingitis recover and remain permanently well without operative intervention.

2. Ninety-eight per cent. of such cases will become quiescent and the pathology will be limited to the pelvis.

3. With rare exceptions, operative work should not be undertaken in the acute stage of pelvic inflammation.

4. When operative work is undertaken, it should be radical in the extreme.

Irish Moss as a Food.—Consul H. Abert Johnson, Dundee, Scotland, says (*Commerce Reports,* June 21, 1918) the Dundee Food Control Committee has recently had its attention directed to the value as a food of what is known as carrageen, or Irish moss. It is claimed that the potentiality of carrageen as a food has been fully recognized by Scotch and Irish people for generations.

Carrageen is known in various parts of Scotland under the name of "hen's dulse"; to the scientifically inclined it is known as chondrus crispus. It grows abundantly on rocks and stones within the littoral zone, flourishing in salt water which has a dash of fresh in it. In its natural state it has the appearance of dwarf dulse, the small flag being soft and cartilaginous, and in color it ranges from a greenish yellow to a purplish brown. When picked and sun dried it becomes translucent and of a horn-like consistency. Among the poorer classes in Scotland it is boiled in water until it assumes the consistency of porridge and is served in a like manner with milk. It forms a jelly in about 20 to 30 times its weight in water, but is more commonly used in making various kinds of puddings. Other purposes for which it may be utilized is fining beer and in connection with calico printing. It has 55 per cent. of mucilaginous matter, 10 per cent. albuminoids, and 15 per cent. mineral, being rich in iodin and sulphur. There is little doubt that carrageen, if methodically collected and properly used, would help in augmenting the national food supply.

RECTAL SECTION FOR PELVIC ABSCESS *

HARRY P. RITCHIE, M.D.
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ST. PAUL

Several years ago, before the Surgical Section of this Association, my senior associate, Dr. A. MacLaren, called attention to the efficacy of rectal section in certain phases of peritonitis. During the succeeding years the operation has, on many occasions, served its purpose to such a satisfactory degree that we have become earnest advocates of its use and are continually seeking the opportunity to have it performed. Such a method of drainage, departing from more accepted methods, lacking refined technic, and in some degree offending surgical principles, can be made popular only when it can be proved worthy.

It may be that the operation is in universal use, but the results are too variable, the experience with it too limited, and the procedure too simple to secure for it the consideration it merits. In speaking of its performance, we are met with more or less surprise, as though it were an entirely new suggestion. Often the justifications and indications are questioned, particularly on the grounds that pus accumulation in the abdomen may be reached by more accepted surgical avenues.

Those of experience in gynecologic surgery need no advice in the selection of cases for vaginal section. This was, at one time, an operation in wide use and patients were frequently subjected to it, many of whom would today be considered unfitted for it. It is our experience that vaginal section is becoming ever less frequent. It is probable that in many such cases, classed as tubal in origin, the infection was due to other causes. The great advance in the science of midwifery and the wider information on the perils of abortion and miscarriages have, beyond a doubt, greatly diminished infection of these organs. It is true, however, that in many cases the effect was most satisfactory, followed by immediate recovery, and it is certain that pelvic abscess of appendiceal origin was not uncommon among them.

It would seem reasonable to expect that peritonitis, resulting from appendicitis, with all the publicity and exhaustive discussions would lead to a full appreciation of the necessity of early surgical attention. There are, however, many cross currents of opinion as to the proper method of care, not only affecting the profession but also confusing the laity. The result is that the problem of perforative appendicitis and peritonitis is ever present.

The diagnosis of acute appendicitis is not always easy. The sequence of general abdominal pain, nausea or vomiting, localization of tenderness in the right fossa and occurrence of varying degree of fever, runs true to form in most cases. Nevertheless misinterpretation or minimization of the symptoms, neglect of the patients, and lack of hospital care or difficult transportation lead to frequent cases of perforative appendicitis, not only of recent origin but also of many days standing. Even in early operation, the chance of insufficient or indirect drainage is always present, and with the inexperienced operator and sometimes with operators of experience, the first operation may be incomplete.

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* Read before the Section on Obstetrics and Gynecology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Pelvic abscess is therefore a possibility in every case of acute perforative appendicitis, and may form, early, late or remote, because of the several foregoing contingencies. Its occurrence is most serious to the patient who must submit to further operative work, and most disturbing to the surgeon who assumes the responsibility. It is possible, then, that this simple procedure may solve the problem.

VARIOUS ASPECTS OF THE OPERATION

There is but little to say and the comments to be made may be briefly summarized as follows:

1. It is not in any sense an exploratory operation! Digital examination should reveal a round, resistant mass—a bulging of the anterior rectal wall. It is surprising how far distant from the anus this may occasionally be. Any uncertainty should lead to a postponement or acceptance of other measures. On three occasions, under imperative circumstances, the puncture was made either without result or with the result that so small a quantity of pus was obtained as to have no bearing on the case. We have come to believe that its use should be limited strictly to that case in which the mass is well defined.

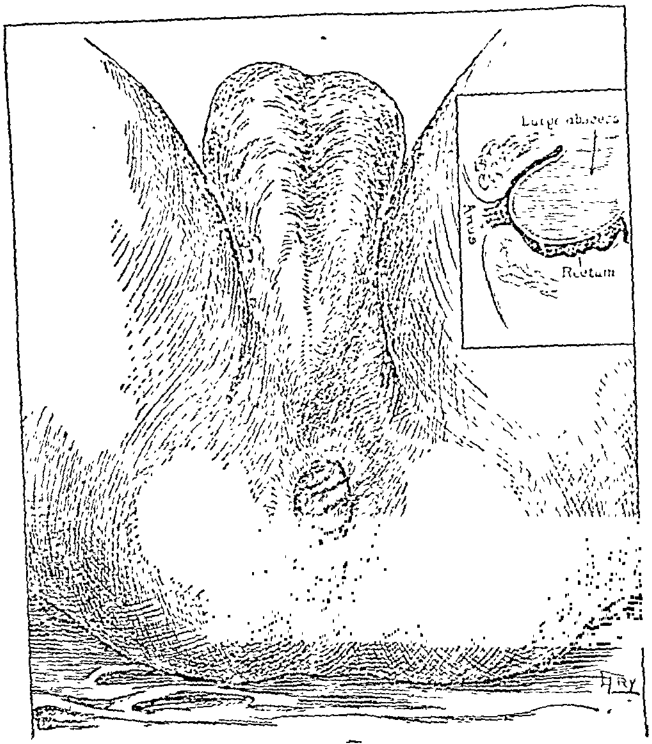

Fig. 1.—Dilatation of sphincter from pressure of large pelvic abscess through anterior wall of rectum.

2. When it is a primary operation, the patient is brought in with rigid abdomen, with all the constitutional signs of virulent infection involving a large area of the peritoneum, and in such a condition owing to the long period of the inflammation that a laparotomy would be most critical, as evidenced by the high mortality in these cases. Almost constantly laparotomy reveals fluid in the pelvis constituting the general feature of the general peritonitis. We have come to believe that if the abdominal pressure can be relieved by the removal of the fluid from below, the patient will thereby gain the balance and the laparotomy attack will be withstood without risk. This was done in seventeen cases, in two of which the situation was cleared so satisfactorily that the patients refused formal operation and left the hospital without further attention. It is, however, seldom that the pelvic accumulation is sufficiently definite at an early date in the course of the inflammation to justify puncture. In several of these cases the puncture was done on the fourth, fifth and sixth, and, remarkable to state, on the tenth day. When the patient has weathered the process this long, localization has to some degree taken place, and it must be admitted that several of the patients in the seventeen primary section cases would have recovered without its performance. It has the very great advantage of evacuating the quantity of pus, which often adds to the seriousness of the formal operation. The puncture will drain only a part of the field and if it is undertaken, laparotomy should soon be done, as the primary abscess about the appendix may lead to a recrudescence of the serious symptoms.

3. It is as a secondary operation that it has its greatest effect and is best considered as an accessory—a follow-up procedure in the complicated case.

4. It should not be considered a last-resort operation. We have been called to operate on moribund patients who were carried along by so-called conservative measures to a point beyond relief. We believe that no patient should be denied the operation, whatever his condition, providing the local indication is present, nor should a few or a series of successful cases lead one to accept it in lieu of laparotomy in the hope of the formation of a pelvic abscess.

Under this heading, attention is also called to the fact shown in two cases, that rectal drainage will not always drain pus from the left fossa, so that a temporary improvement should not argue against counter opening above.

5. The operation has no advantage over vaginal section and its use is thereby confined to men and children.

6. The dangers and risks of section are not to be considered because of the usual imperative circumstances. The bladder should always be emptied by catheter as the inflammation contiguous to this organ may cause incomplete emptying. Puncture of the bladder, however, may lead to no serious results, providing the damage is immediately repaired. In one early case, the bladder was opened and closed without causing any symptoms whatever. Some vessels of the rectal wall may be cut across. In one very young child there was a good deal of bleeding. This baby died, and death may have been due to hemorrhage, although at the time our feeling was that her death was inevitable. In no other case was there any accident.

7. The technic (if the operation may be so dignified) is simple, involving an empty bladder, a thoroughly dilated sphincter, the demonstration of the mass back of the prostate, the incision by sharp pointed scissors, the dilatation of the opening by dull pointed forceps, and the insertion of a winged rubber tube. If the patient is in an exaggerated lithotomy position, it sometimes brings the field more in line with the eye. This helps a great deal at times and it is surprising how far back from the anus the point may be. The tube remains a varying period and is to be left longer rather than to be removed early. Several times it was reinserted and we have seen no ill effects from delayed removal.

The search for pelvic abscess is really the most important feature. It is surprising how frequently the rectal examination is forgotten when in many conditions its value is proved. While all women with acute abdominal symptoms are subjected to vaginal examination, the rectal examination in men and children is often overlooked. When a patient is under observation it is not wise to allow one examination to decide. Repeated examinations are necesssary, as it is surprising what changes may occur in a few hours. In this connection I shall cite one remarkable case: A routine examination of a young boy, to whom I had been called in the country to drain an empyema, and who presented some abdominal symptoms which could readily be placed as concomitant to the lung condition, revealed a pelvic abscess. I was then able to do a rib resection and rectal puncture at the same sitting and cure the patient, whereas a laparotomy, under the circumstances, would have ended fatally.

CONCLUSION

It is difficult to present any statistics and I think it hardly necessary, for the reason that the occasion for the performance of the operation is not frequent. Keeping it in mind and looking for it several years, we made the puncture in but fifty-three cases. The principles of abdominal drainage are well standardized and rectal drainage is not suggested as a substitute for established methods. But once in a while, a critical situation arises in which a rectal examination will reveal an accumulation so definite as to solve the problem. The primary section is but a temporary affair and must be followed soon by the major operation procedure. The secondary section is often dramatic. The patient, already subjected to formal operation, has every expectation of recovery, but does not do well, the pain continues, and the fever is still up. He is restless, anxious, often critical of nursing and orderly attention and fearful of further surgery. It is then that this operation merits closest attention. In the properly selected case, its effect is positively startling.

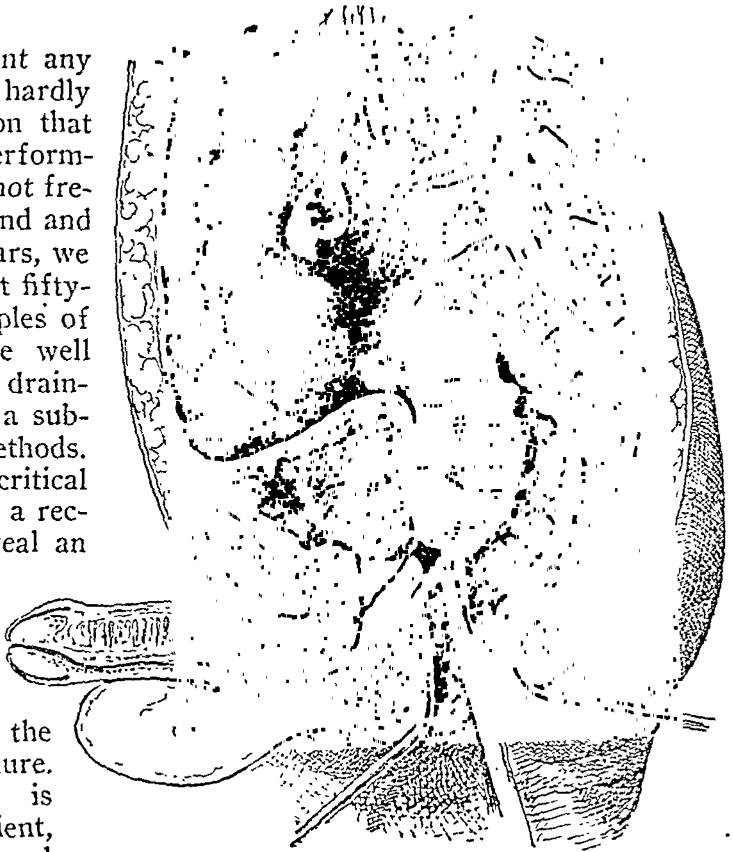

Fig. 2.—Method of opening small pelvic abscess; scissors used to puncture abscess and as dilators.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BROWN AND RITCHIE

Dr. J. H. Carstens, Detroit: All the work we have been doing for twenty-five years ought to enable any doctor to diagnose appendicitis; and, if you have a case of appendicitis, why open down in the rectum, when you can get the appendix out so much more easily through the right inguinal region. Nature walls off this abscess, plasters on exudate, plasters on intestine and plasters on omentum to keep it localized in that particular place, and then if you will open the abscess you will have no trouble in draining it, and in twenty-four cases out of twenty-five healing will take place. So, I cannot see why we should open it in the rectum. In an exceptional case, in which an abscess develops between the bladder and the rectum, wholly spontaneously you might say, the abscess might be opened through the rectum. But in that kind of a case a cure is attained spontaneously by rupture of the abscess into the bowel. We followed Tait and Price for a good many years. Tait had wonderful results because he operated on these old chronic pus cases that were sterile. We, in this country, did not always wait until the case was chronic and sterile, but operated in the acute stage, with the result that our mortality was 15 instead of being 4 or 5 per cent. Finally we learned that the best thing to do was to let the acute cases alone. Ninety-nine per cent. of them will recover. If later they show symptoms we can do whatever is necessary. In some of these cases radical operation must be done. You may have to remove the tubes, but you can usually save the ovaries, or at least one. One of the gentlemen spoke of the so-called cofferdam of Price. He is about twenty years behind the times. Why not drain by gravity? In these cases I open the culdesac and insert a little rubber tube with a cross piece, so that it will not slip out, and that will drain. I close the incision absolutely, and whatever septic material may have to come out goes down the drain. When the acute symptoms have subsided, showing that the microbes have been killed and walled in, then is the time to operate.

Dr. E. E. Montgomery, Philadelphia: Having graduated at about the time that Tait issued his great lesson on surgical treatment of pelvic inflammation, and having been contemporaneous with Dr. Price in the work which he did in Philadelphia, I appreciate greatly the work done by these men. They were positive in their opinions, and yet much has been learned since their time concerning the treatment of many of these conditions. Patients suffering from gonorrheal infection of the tubes, with a palpable mass in the pelvis, have been advised of the absolute necessity of removal of such an inflammatory mass, but refused operation, recovered and gave birth to children. This led to the knowledge that many of these patients do much better surgically if operated on late. As has been said, after the microorganisms die the condition becomes sterile. In another class of cases the inflammation extended through the tubes leading to inflammation of the peritoneum and a mass within the pelvis. It was then found that a vaginal incision might be employed for relieving acute symptoms in a case unfavorable for radical operation and that many of these patients recovered. This was shown to be a procedure which could and should be employed in cases with a mass in the pelvis capable of being reached readily through the vagina. In other cases it was found that abdominal operation was necessary. I fully agree with Dr. Carstens that there should not be drainage through the abdominal wall, that the patient should not be subjected to the discomfort of such drainage, to the prolongation of convalescence and the danger of subsequent hernia when drainage is so readily possible through the vagina. In many of the cases in which there was extensive suppuration within the pelvis, the packing of gauze, supplemented by the introduction of a tube, kept the intestines out of the pelvis until the peritoneum could be reformed, and spared the patient the danger of adhesions. The tubes and ovaries are not always responsible for pelvic abscess. The appendix may be the cause. In such cases the evacuation of the pus will not afford complete relief, because there are other pus pockets higher up around the appendix.

I recently saw a woman who had pus in the pelvis. I opened the abscess through the vagina. Drainage tubes did not give the expected relief. An abdominal incision was made and it was found that the appendix was the cause of the infection. There was pus not only around the appendix but higher up, walled off in the liver and spleen. In this case, therefore, drainage had to be instituted on both sides of the upper abdomen as well as through the vagina. The patient recovered. Now, in reference to the paper by Dr. Ritchie in which the abscess occurred as the result of appendicitis and was walled off in the lower part of the abdomen bulging into the rectum, there is no reason, in my judgment, why he should not, as a prophylactic measure, open this abscess and effect evacuation. This leaves the patient no worse, better, indeed, because he has gotten rid of that pus. The cases, in my judgment, would be limited to men, since the vagina affords a much better means for relieving the condition in women. Whenever the intestines are patulous, with no kinking above the point where the bulging occurs, an incision in the rectum has no ultimate bad effect.

Dr. G. N. Thomas, El Paso, Texas: Our point of view on the subject treated in these two papers depends on the line of work we are doing, the nationality of the patients and the grade of operations. We all agree on the different stages of pelvic conditions. Few surgeons would want to operate during the acute stage. In the El Paso County Hospital most of the work is done on Mexican women. The infection is nearly always neisserian and probably in all cases goes through the vagina, uterus and tubes. In the American woman the infection is mixed and enters through the broad ligament producing adhesions down in the culdesac. I divide the infection into the acute stage and the stage in which the inflammation runs a normal course. If a secondary temperature starts up and there is marked bulging over either tube the case is surgical in almost every instance. If the case, after running an acute course, becomes normal and with proper care the temperature and symptoms do not again become pronounced, operation is avoided. The cases which are best treated through a vaginal incision are those in which there is bulging of the culdesac and fluctuation. In other cases better results are obtained by abdominal section, and then the stab puncture in the culdesac is unnecessary.

Dr. Mather Pfeiffenberger, Alton, Ill.: Walling off the abscess and proper drainage has reduced the morbidity and mortality in these cases to a minimum. Comparing the condition of pus in the pelvis to pus in the appendix and gallbladder would, in the latter case, liberate the pus as quickly as recognized. Why not do likewise in the pelvic cases when it could be done safely? Dr. Ritchie spoke of a well defined mass in the pelvis and evacuation per rectum. Both tubes may be involved in the female and yet only one abscess is palpated. One tube might be evacuated and the other not. My practice is to make a rectal examination in appendiceal trouble. You can then easily explore and ascertain whether the abscess is in the pelvis. The abdominal route with drainage, in my opinion, gives the best results.

Dr. Horace G. Wetherill, Denver: It is hard to believe that the nationality or race of the individual patient would make a very great difference in the pathologic process. It would make little difference whether the infection were "neisser" or not so "nice." Certain types of infections run certain courses. It is the consensus of opinion today that abdominal operations should not be done in the acute stage of tubal infection. After they have become chronic, operation may be done with better results. The infection is more or less self-limited, and if we let it alone it will often take care of itself, and the patient may even bear children afterward. The limitation of the infection is governed by the biology of the particular bacterium involved, and the life of most bacteria is limited. If we are going to operate on these patients in the chronic stage by an abdominal operation we must consider carefully whether we want to drain, and, if so, how. My experience is that in cases in which a very considerable degree of sterilization has taken place no drainage whatever is necessary. I have gone in, as all of you have, broken up these cheesy masses, taken them out and closed without drainage and had the smoothest possible convalescence. I agree with Dr. Carstens as to drainage. One more phase of this question must be considered. We know now how infections may be taken up from certain local foci in the blood stream and may cause difficulties in other parts of the body. We must consider these local foci of infection from the standpoint of a focus from which a constitutional infection may arise, and it frequently becomes necessary to do an operation because of constitutional toxemia from such origin.

Dr. Peter B. Salatich, New Orleans: One of the mistakes many of us make, and which is the reason we have hernia, is the fact that we leave too big an opening for the drain. I leave only room enough beside the drain for the entrance of the forceps. As a means of preventing adhesions I take a piece of rubber tissue and suture it with fine catgut to the bottom of the pelvis so that it will come up in a fan-shape, then close the incision as tightly as possible. I do not drain by the vagina. Many of these patients have too short a rest period. I keep the patient in bed for four or five weeks, and after the temperature has subsided and remains so for three or four days, if the structures are movable, I operate. I remember one case of pelvic drainage in a woman who had an abscess on the right side above the umbilicus. The temperature was 105 F. Drainage was established through the vagina. In two or three years it was necessary to do a laparotomy, when I found that this tube was absolutely free, the only evidence of drainage being a small patulous opening about the center. Another mistake we make is that we drain for too long a time. I make it a rule when I put two cigaret drains in to take them out at the end of forty-eight or ninety-six hours. Then I place one little drain at the level of the incision.

Dr. Robert T. Morris, New York: In any acute inflammatory process the bacterial involvement will be self-limited. The best way to control the acute process is by the Clark opium treatment. It is the best treatment if you do it in the right way. In West Virginia they say that whisky is a cure for snakebite, but that the only way to use it right is to "have it in you when you're bit." If you are going to use opium in the right way you must get the respirations down to 10 and 12 and keep them there. Clark says do not measure the amount of opium you give, but measure the respirations of the patient. There is much to be done in the way of conservatism in the saving of structures. Often we do not find the fimbriated end of the tube. I do not believe in removing the uterus. I am sure it has an internal secretion of its own. You can do a lot of conservative work where you really are at liberty to use judgment in your conservatism. In the acute stage you cannot use conservatism. Here the means of making a diagnosis are not on the same basis.

Dr. John Young Brown, St. Louis: My paper dealt entirely with ascending inflammations of the pelvis. Those of us who are old enough can recall that fifteen or twenty years ago Henrotin of Chicago advocated doing away with laparotomy and urged that all pus collections be attacked from below. In all inflammations above the pelvic brim I operate early. When the condition is an ascending infection the time to operate is when the condition is quiescent. Hard and fast rules of when to operate and what operation to do cannot be laid down; each case is a law unto itself. Regarding drainage from above, I agree that many cases can be closed without any drainage at all. The cofferdam drain I have been using is used not so much for drainage, but to lift the intestines up out of the pelvis and to prevent the small intestine falling back and producing ileus. I have never seen a case in which I felt justified in opening an abscess through the rectum. If the conditions were reversed and the abscess were attacked from above and it happened that the rectum was injured there is not a man who would not close that abdomen with a good deal of temerity. I have never seen an occasion to do this operation. I have seen one case in which there was a large accumulation of pus in the pelvis, with the woman in an acute condition with a bulging abscess in the vagina. As a primary measure such a case should be opened through the culdesac and further work done governed by the conditions left. Each case of this type is a law unto itself and the surgeon must adjust his work in accordance with the condition which confronts him.

Dr. Harry P. Ritchie, St. Paul: I want to correct any impression I may have given that rectal section ought to take the place of any formerly recognized procedure. Practically every case has been subjected to the ordinary drainage. When one presents such a bizarre operation for drainage, it is certainly open to criticism. Only under certain circumstances is it justifiable. When the abscess presents at the pelvis and a simple procedure will give evacuation of this abscess from below there is no question but that it is the proper thing to do and is an easy way out of a critical situation.

THE TOO INTENSIVE ARSPHENAMIN TREATMENT OF SYPHILIS *

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Syphilis therapy, in spite of its remarkable present day attainments, remains, as ever, a greatly mooted problem. There is much variance in opinion in regard to what agents and methods best subserve their purpose. The modern arsphenamin remedies of par excellence, and the remarkable laboratory achievements in therapeutic precision and control, have been able to secure scarcely more unanimity of opinion in this special field of therapy than the less efficient remedies and the uncertain methods of the past.

Seven years of general experience with arsphenamin has been ample to accord to this remedy its well recognized preeminence as the most efficient of all antisyphilitic remedies. Nothing has yet been advanced, however, to clearly, definitely and decisively demonstrate that any one given method of systematic treatment answers its purpose best.

Arsphenamin therapists can be conveniently divided into two factions: (1) those who believe in intensive, frequently repeated, almost to the point of tolerance, and long continued administrations, and (2) those who practice a more conservative, less frequently administered plan of treatment. The former method has by far the greater number of adherents, and has received almost universal sanction and recognition.

In my early arsphenamin experience I adopted the intensive method of treatment. I shared the general conviction that if one administration was efficacious and devoid of deleterious results, a half dozen or more well tolerated administrations could be manyfold more efficacious. A year of carefully exercised serologic control and clinical study, soon changed my conviction. Cases intensively treated compared very unfavorably with those which received only one or two administrations. The well-to-do individual who eagerly sought and received the most prodigal attention became usually serologically fixed positive, and showed persistent clinical manifestations which nothing could favorably influence. The indifferent, careless, negligent and often indigent patient who received only one administration, and wilfully absented himself for six months or a year, almost uniformly showed no trace of clinical manifestation and became serologically negative. These routine observations soon led me to adopt a more conservative plan of treatment, and after an interval of a year I presented my results to Ehrlich in a personal visit. Ehrlich informed me that he was most favorably impressed with the results, but good as they were, he believed that they would be far better if I returned to the more intensive form of treatment.

I returned to my work impressed that I had made a tactical error, and resolved again to employ intensive arsphenamin treatment. I was not long in again reaching the conviction that conservative treatment was conducive to more favorable results. After another year's interval, I again returned to Ehrlich and submitted my tabulated results. Ehrlich this time acknowledged that his former advice may have been erroneous and that he was beginning to experience a growing conviction that there was a good basis for my contention.

I have since that time steadfastly employed a conservative method of arsphenamin therapy, based on clinical observation and serologic control. Every case of syphilis, not previously treated with arsphenamin, received a commensurate full dosage of arsphenamin which is not again repeated in from four to six months, except in the face of a threatening and serious clinical manifestation. A serologic examination is made every thirty days for the first six months. If there is no material change for the better, or the serologic examination shows a relapsing character, treatment is repeated at the end of the first four months. If the serologic reaction shows improvement, but is not negative, or if there are fairly well defined clinical manifestations, treatment is invariably repeated in six months. This plan is continued until the patient becomes persistently serologically negative and devoid of all manifestations of well defined clinical nature.

SEROLOGIC CONTROL

I have the utmost faith and confidence in a careful, well exercised serologic control. This faith and confidence would not be nearly so great if it reposed merely in the Wassermann reaction. The Wassermann reaction is eminently trustworthy in the sense that a positive Wassermann reaction indicates positive syphilis. The test, however, does not possess sufficient delicacy, even with cholesterinized antigen to demonstrate more than a moderate degree of therapeutic progress. For the past three years, I have employed both the Wassermann test and the Hecht-Weinberg serologic control test as cleverly modified by Gradwohl, and I am supremely impressed with their combined efficacy, delicacy and reliability in exercising the highest degree of diagnostic and therapeutic control. Both are exceedingly valuable and indispensable in efficient therapeutic management, and bear a reciprocal value to each other. The Wassermann reaction uniformly shows the first evidence of improvement, and frequently reaches a complete negative phase before the Hecht-Gradwohl test becomes completely negative. It presents, in the absence of clinical manifestations, the best evidence that can be adduced that therapy has progressed to a satisfactory stage. Relapses can be noted in the Hecht-Gradwohl reaction long before it is evidenced in the Wassermann test, and usually long before the manifestation of a clinical nature. The Hecht-Gradwohl test is positive in incipient syphilis before the Wassermann reaction, and is indispensable as an aid in early diagnosis. Furthermore, the two reactions are a check on each other, and are in a position to overcome any discrepancy or error in technic.

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* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

REPORT OF CASES

From 1911 to 1918, I treated 1,133 cases of syphilis in private practice, for the most part in the early stages, employing the conservative method of treatment as outlined. Some of the early cases were treated intensively, and quite a number received preliminary intensive arsphenamin treatment at the hands of confrères before placing themselves under my control. In all, 10,589 serologic examinations were made. After deducting 286 patients who wilfully or unwilfully absented themselves from further observation within ninety days after initial treatment was instituted, and 245 patients who were serologically and clinically negative cases, less than two years, and forty-six cases which were positive not longer than one year, there remained 456 sufficiently long and carefully observed cases to permit the following deductions. Of these cases 367, or 80 per cent., were serologically and clinically negative for two or more years. Of the 367 negative cases, 154 passed to a clinical and laboratory negative phase with one administration, many of them being under regular systematic observation for more than five years; 107 passed to a negative phase with two administrations, 53 with three administrations, 27 with four, 9 with five, and only 17 with six or more. Of the 89 positive cases, 30 have failed with three, 20 with four, 16 with five, 11 with six, 3 with seven, and 9 with eight or more arsphenamin administrations. Seventy-five per cent. of the positive failures give a negative Wassermann reaction and are free from clinical manifestations. With these excluded, this conservative method of treatment yields about 5 per cent. of abject therapeutic failures from a clinical and serologic standpoint. The latter cases, however, give a Hecht-Gradwohl test that is positive, many weakly positive, and as such must be looked on as incomplete results. Quite a number of the patients who show a persistently positive Wassermann reaction were recipient of intensive initial arsphenamin treatment.

LABORATORY STUDIES IN SPIROCHETE DRUG TOLERANCE

Laboratory investigation is in a position to cast some light on past and present clinical and therapeutic results. Ehrlich and Hata[1] were able to demonstrate, as early as 1910, that repeated injections of arsenic in animals and man would produce a strain of spirochetes which so successfully resisted arsenical medication as to merit the special designation of "arsenic-fast." Similar investigation with bacteria have yielded similar results. Of greater interest and more practical importance are the recent laboratory investigations of Akatsu and Noguchi.[2] These investigators determined the degree of tolerance of pure cultures of the *Spirochaeta pallida* to arsphenamin, neoarsphenamin, mercuric chlorid, iodin, and potassium iodid in vitro against gradually increasing doses of these drugs. A gradual increased resistance of the organisms against these various agents could be distinctly noted. The *Spirochaetae pallidae* increased their resistance to arsphenamin and neo-arsphenamin within from three to four months, five and one-half times their original mark. The same organisms increased their resistance to mercuric chlorid from thirty-five to seventy times; and to potassium iodid about three times. This acquired drug fastness in vitro disappears when the spirochetes are cultivated in drug-free mediums for several generations. It is fair to assume that what takes place in vitro can also occur in vivo, and particularly if the analogy bears some degree of clinical confirmation.

INTENSIVE AND CONSERVATIVE SYPHILIS THERAPEUSIS OF THE PAST

Long before the discovery of the cause of syphilis and present day laboratory achievement, the therapy of syphilis was an equally mooted problem. The remedies which were used were naturally the products of pure empiricism, and the methods for their administration were the result of careful clinical study and observation. Therapy at that time was as much mooted as today. There were eminent syphilographers and therapists who practiced and advocated intensive, uninterrupted treatment, covering years and years. There were many who practiced more conservative, and a more interrupted form of treatment. These investigators of the past had little to guide them, aside from empiricism and careful clinical study and observation. Present day laboratory investigation and achievement enables us to give their results a more intelligent and comprehensive interpretation.

Those who employed intensive, uninterrupted and long continued treatment in the past were doubtless actuated by the long and frequent relapsing character of the affection. Those who practiced a more interrupted and more conservative method of treatment, doubtless noted that continuous and uninterrupted treatment did not entirely prevent clinical relapses, nor stay completely cerebrospinal complications. In fact, many to this day are of the opinion that tabes and taboparesis find their largest contingent in persons who, in the past, have taken protoiodid continuously for two or more years without any interruption. Furthermore, they observed when clinical relapses occurred in patients receiving continuous and intensive treatment that these relapses became worse instead of better, if treatment with mercurials and iodid was further intensified and prolonged. They further observed that a clinical result could only be obtained if antispecific remedies were entirely removed for a period of several months and temporarily replaced by general tonic treatment. In other words, they observed clinically and empirically what the laboratory is today able scientifically to demonstrate, namely, that syphilis in a relatively short time acquires a tolerance to antispecific remedies, which is not removed until the individual is given a definite respite from further specific treatment.

The rapidly acquired tolerance of syphilis to antispecific remedies readily accounts for the results that sometimes follow the use of inert proprietary and quack remedies. It doubtless explains the supposititious value of remedies of the sarsaparilla type. A combination of senna and licorice has been credited in Europe and elsewhere as a highly successful therapeutic agent in the treatment of severe intractable syphilis. This was no doubt in large measure due to the fact that many cases of intensively treated syphilis enjoyed a well deserved respite when the remedy mentioned was temporarily substituted for the overworked mercury and potash.

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1. Ehrlich and Hata: Die experimentelle Chemotherapie der Spirillosen, Berlin, 1910.
2. Akatsu, S., and Noguchi, H.: Drug-Fastness of Spirochetes to Arsenic, Mercurial and Iodin Compounds, in Vitro, Jour. Exper. Med., 1917, 25, 349.

THERAPEUTIC CONSIDERATIONS

It must be conceded that the ideal goal in syphilis therapeusis would be reached if Ehrlich's concept of a "therapia sterilsans magna" could be successfully attained. Such a remedy should possess a maximum of parasitotropic and a minimum of organotropic activity. The arsphenamin remedies are the nearest present day approximate of this desideratum. Mercuric chlorid possesses much greater parasitotropic activity, but its marked organotropic properties preclude its use in this special direction. It is needless to state that the arsphenamin remedies have not attained Ehrlich's concept of a "dosis sterilsans magna." It is possible that the full extent of their parisitotropic power within reasonable limits of organotropic activity have not been fully consummated. The careful study of method and dosage may effect some improvement in this direction. It must be acknowledged that many cases proceed to an apparently successful clinical and laboratory recovery with a single administration of arsphenamin. It is also noteworthy that the greatest degree of clinical improvement and usually the most prompt and greatest amount of serologic improvement follows on the heels of the first administration. It is quite possible that two or three quickly repeated treatments before sufficient time has elapsed to establish arsphenamin tolerance, would give equally good or better results. Inasmuch as the parasitotropic properties of the remedy depends on its degree of concentration, I believe that a single maximum initial dose should theoretically effect the best therapeutic results. I particularly decry the long continued administration of small fractional doses. This is a form of treatment that is particularly prone to establish arsphenamin tolerance, and is so evidenced in clinical experience. I am also strongly opposed to a too intensive arsphenamin therapy. Patients have come to my personal notice who have received, within from six to twelve months, from ten to fifteen arsphenamin administrations, and remained serologically ++++, and with unmistakable clinical manifestations, which made satisfactory clinical progress and showed laboratory improvement only when arsphenamin was entirely withdrawn for a period of from four to six months.

It is reasonable to assume that present day clinical experience with arsphenamin bears a close analogy to mercury of the past. Experience with mercury has taught us that there are many cases that have fared badly in a clinical way with very persistent and intense treatment; that many have fared extremely well with very neglected and indifferent treatment. Many cases progressed often to an apparently satisfactory clinical recovery with little and indifferent treatment, and developed intractable severe manifestations only when a very energetic treatment was instituted. The old adage of "let sleeping dogs lie" has a possible application in both instances, and finds further exemplification in the arsphenamin provocative reaction in cases that have been persistently serologically negative, and free from clinical manifestations, which after a single administration of arsphenamin become strongly and persistently serologically positive, and develop intractable clinical manifestations.

Syphilis therapy is too often inconsiderate of the fact that it is often best to leave well enough alone. It is much more difficult to refuse than to give attention. One of my early preceptors was prone to frequently remark that a man should often be rewarded more for doing nothing than something. Its significance was never fully appreciated until the realm of medicine and syphilis therapy in particular were thoroughly invaded. It is unfortunate for an individual to know that he is infected with syphilis; it is doubly unfortunate for that individual not to realize within the lapse of a few years that he is clinically well, and that he must continue his treatment from month to month, and year to year indefinitely, in order successfully to ward off future complications. Under such a regimen, neither patient nor physician possesses any moral assurance of a satisfactory recovery. Syphilis is essentially an affection in which the patient should be treated as well as the disease, and to lead such an individual to the point at which he becomes, as it were, a hopeless drug addict is unfortunate. The repeated administrations of arsphenamin even at long intervals, though well tolerated; the intermittent administrations of mercury and iodid, in their various forms; and all other forms of antisyphilitic treatment, if unnecessary, cannot be other than baneful. There is an incomparable degree of personal satisfaction to patient and physician to feel that a definite goal has been reached which precludes further treatment and attention, except an annual or semiannual serologic examination. There is an inexpressible degree of peace of mind to the patient, when he can realize that he can place his head on his pillow at night and entertain no fears that the succeeding six months, year or two years, will bear him untoward results. Thanks to arsphenamin and serology, this assurance can be granted to the vast majority of syphilitic patients within two or three years.

CONCLUSION

This paper is prepared and presented in order to set forth that there may be considerable unnoted virtue in a conservative method of arsphenamin treatment. Its second and no less important purpose is to impress that too intensive arsphenamin treatment may be conducive to unlooked for deleterious results. What is set forth in this direction is based on painstaking clinical and laboratory study of a fairly large number of patients, in private practice, carefully and routinely observed for a goodly number of years. They are not intended to express an absolute conviction, nor are they presented with the hope that they will receive general and universal acceptance. I trust that they will bear future investigation and study and possibly stimulate others along similar lines so that a better and more general comparison between intensive and conservative treatment of the future can be elicited. I feel assured as far as my personal experience permits me to judge that my results compare most favorably with those who have pursued a more intensive arsphenamin treatment of the past, and the recent interesting laboratory investigations, which have clearly established gradually acquired arsphenamin tolerance on the part of the *Spirochaeta pallida*, add material weight and color to my contentions. The fact that out of a grand total of 1,133 cases, from which 677 were eliminated as unfit for careful report, 80 per cent. proceeded to a clinical and laboratory recovery without trace or evidence of any infection for a period of two or more years, must speak somewhat in favor of such a conservative method of treatment. If we can add to these 367 cases, 65 cases that were negative to the Wassermann test and clinically negative, but more or less persistently positive to the Hecht-Gradwohl control test, 95 per cent. of cases proceeded to a clinical recovery. This negative phase was reached by 154 cases with only one administration of arsphenamin or neo-arsphenamin, and in 107 cases with only two administrations.

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ABSTRACT OF DISCUSSION

Dr. John A. Fordyce, New York: Dr. Heidingsfeld does not state in what stage of the infection his results in the treatment of syphilis were obtained. In early syphilis, before the Wassermann reaction becomes positive, it is possible to abort syphilis with comparatively few doses of arsphenamin. How many doses may be required we cannot tell. In fully developed secondary syphilis it usually requires at least two courses of arsphenamin of six doses each, combined with intramuscular injections of mercury and followed by mercurial injections, for a period of two or three months, before the Wassermann reaction yields to treatment. In my opinion, it is advisable in all cases of secondary syphilis to continue the treatment at intervals for a year to insure the patient against a relapse. I have repeatedly seen patients in early syphilis, treated with two or three injections of arsphenamin, who have left the hospital and returned within six months or a year with precocious ulcerative lesions of the skin. It is difficult to compare the serologic results obtained in different laboratories, but we have not been able to influence our cases either clinically or serologically with the amount of treatment which was employed by Dr. Heidingsfeld. He should have stated more carefully the stage of the disease in which his results have been obtained by the use of the minimum amount of treatment as indicated. I am not in favor of the very intensive treatment which is advocated by certain syphilographers. I think we should feel our way carefully and give 0.3 or 0.4 gm. of the drug for the initial dose, gradually increasing the dose to 0.5. The first three or four doses may be given at intervals of five or six days, the next two or three doses at intervals of a week. At the end of this time I think we should permit an interval of six weeks to elapse before repeating another course of arsphenamin. I have seen very injurious results from too intensive treatment. In one patient, who received fourteen injections of arsphenamin at a well-known sanatorium at three-day intervals, a very widely disseminated form of exfoliative dermatitis resulted, followed by the death of the patient. It is very difficult to formulate in definite terms the size of the dose, the intervals and the number of treatments. It is largely individual and depends to a great extent on the experience of the physician.

Dr. Budd C. Corbus, Chicago: I should like to ask Dr. Heidingsfeld on what conclusions he bases his results. Is it on the blood Wassermann alone? I do not doubt that in some cases he was able to get an early clinical cure of the disease because there are many different strains of spirochetes. The most important factor, however, is the negative blood Wassermann, checked up with the spinal fluid Wassermann. Many cases with a negative blood Wassermann show spinal fluid involvement. In this class of cases my procedure is a most intensive intravenous therapy, followed by a spinal fluid drainage. It is much better to run the risk in overtreating an individual rather than have him succumb to paresis or some other form of spinal fluid involvement. In one case I have given as high as forty-one intravenous arsphenamin treatments for spinal fluid involvement. This patient has maintained his negative serologic test for over a year without any treatment.

Major W. L. McBride, Fort Riley, Kan.: Within a few years I am sure that men can report favorably on the intensive results of treatment. In the Army men now get a minimal dose of 5 grains, with gradual increase, receiving eight injections in all in a little over seven weeks, then rest forty days, and then the serologic test is made. The cases are being observed carefully, records are made, and before long I am certain reports will come in from men interested in this work giving you just what this intensive treatment means. So far we have not noticed any deleterious results. A few slight accidents have occurred, but these men are given the treatment as laid out by the department. Probably a year or two will elapse before you can get the actual result, but many cases are under observation, and I am sure we can come to definite conclusions before long as to what intensive treatment will mean to these men.

Dr. John E. Lane, New Haven, Conn.: If we have learned anything in recent years about the treatment of syphilis it is that the intensive treatment in the early stages is necessary and that in the stage of the chancre before the Wassermann reaction has become positive the amount of treatment is limited only by the patient's ability to stand the dosage without danger. By intensive treatment in the early stages I mean the injection of arsphenamin combined with the injecton of mercury. It has been demonstrated pretty well that both can be given together without danger and that in many cases this treatment, begun before the Wassermann reaction becomes positive, prevents it from ever becoming positive. The treatment of late syphilis, especially of syphilis of the nervous system, is a problem of an altogether different nature. The control of the cases classed by Dr. Heidingsfeld as cured seems entirely inadequate. Dependence on the Wassermann reaction of the blood without any consideration of the findings in the spinal fluid does not give sufficient evidence of a cure.

Dr. Richard L. Sutton, Kansas City: If I were to be infected with syphilis and had to depend on any one drug for treatment, I should prefer mercury above all others. Wile and Elliott and Schamberg and his associates have found that inunctions give the maximum therapeutic effect with minimum renal irritation, and I think the drug should be administered by this route. In my experience it is extremely difficult to secure a negative serum reaction by means of arsenic alone, and I think it a mistake to depend wholly on this agent. Quite frequently I see patients who have had from four to ten doses of arsphenamin intravenously at three to seven day intervals with practically no serologic change; the blood is as strongly positive as before treatment was begun, although the cutaneous lesions had totally disappeared. I agree with White, Reasoner, Craig and Nichols that certain strains of the *Spirochaeta pallida* appear to have an affinity for nerve structures, and for this reason it is essential that at least one spinal fluid test be made in every case. Before discharging a patient as cured, I think it advisable that the blood be tested at least three times during a period of twelve months in which no treatment is being administered, and, finally, a cell count, serum and gold test should be made on the spinal fluid. A thousand cases of syphilis are undertreated to one that is overtreated.

Capt. E. J. Trow, Toronto: I have found that the intensive treatment is the best and most effective. As far as the Army is concerned, the principle there is to give ten injections in the course of two months, and as the need of men is so urgent we have turned them loose regardless of their Wassermann reaction and let them take their chance at the front. Of course, there are exceptions to that rule and some cases are retained much longer. My experience in the clinic has been that arsphenamin long continued ultimately does have some effect on the Wassermann reaction. In Toronto we have been determining the effect of treatment on the Wassermann reaction by using seven tubes and noting the effect of the drug on all dilutions, but particularly the weaker ones. In nearly every case we see some result almost immediately in the higher dilutions, whereas in the ordinary Wassermann we see no result for a long time.

Dr. Fred Wise, New York: In Dr. Heidingsfeld's title he means the long-continued treatment of syphilis, but not the intensive treatment used in the meaning of the term which Pollitzer and others have used. Pollitzer uses three or four injections on three or four successive days in all favorable cases. He has had no ill results from this practice in the past three years. His dosage is 0.1 gm. to thirty pounds of body weight. On several occasions I have had an opportunity to take over Dr. Pollitzer's practice and gave the same treatment and had no ill results. I have given three successive doses on three successive days at intervals of a week. The number of courses varied. The chief point I wish to bring out is the use of the word intensive.

Why results in Cincinnati should differ so much from those in New York is difficult to understand. Dr. Heidingsfeld's observations are dependable, but his paper should be analyzed and scrutinized closely in order to discuss it properly. It is difficult to get its full import by hearing it read.

Dr. Joseph Zeisler, Chicago: I want to call your attention to the great change which has taken place since the new treatment was introduced in 1910. At first all injections were administered subcutaneously or intramuscularly. The severe pain and great inconvenience connected with it made us discard this form of treatment soon; but we must realize that it meant a much more lasting effect on account of the slow absorption. Since we have adopted almost exclusively the intravenous treatment things have changed very much. Intravenous injection means rapid absorption and also rapid elimination, and under this new style we have been forced to adopt a more intensive treatment. Two years ago Dr. Pollitzer presented his ideas in Washington, and since then I have frequently carried out his plan. In every fresh case we give three injections on three successive days, and such treatment, I think, very frequently means an abortion of the disease; but no sane and safe practitioner will rely on the hope of accomplishing abortion by three injections. We continue by mercurial treatment and later on repeat the arsphenamin treatment. The chief point, however, is the individualization in every case. I must join with Dr. Fordyce in his gentle criticism of Dr. Heidingsfeld's paper, that he has not stated with sufficient clearness the nature of the cases on which he bases his results.

Dr. Bernhard Erdman, Indianapolis: I would like to speak of a very interesting fact, as Dr. Fordyce stated that they were having some difficulty with jaundice following arsphenamin injection. I recently saw an individual who has had his infection for fifteen years, but with no clinical evidence of syphilis. The Wassermann test, made after Dr. Fordyce's recommendation, gave a sharp positive reaction. I did not see the patient again for three months, when he came in, saying that he felt well but was still impressed with the fact that he should have some treatment. I went over the man as carefully as possible. There was no examination of the eye grounds, but the urine was negative. That afternoon he was given 0.9 gm. of the novarsenobenzol brand of arsphenamin in 10 c.c. of water. This was on Saturday afternoon. About 10 o'clock Sunday morning they telephoned to me that the patient had a restless night and was hiccuping. The man weighed about 230 pounds. This hiccuping began within less than twenty-four hours after the injection. In spite of everything I could do, and I followed the suggestions of other men who were called to see the man, the hiccuping persisted for fourteen days. During this interval the patient received chloretone, cocain, musk, opiates and antispasmodics without any relief at all. The renal excretion was cut down to 12 ounces in twenty-four hours; the urine contained albumin, casts and some red cells. He was taken to the hospital and given common salt by proctoclysis as well as tap water with glucose. He gradually recovered with a loss in weight of 40 pounds. I sometimes think that perhaps we make a mistake in giving such large doses before trying out the tolerance of the patient

Dr. Arthur W. Stillians, Chicago: I did not hear any mention of mercury in connection with the arsphenamin treatment and would like to be further informed on that point. There is a great difference in the intermittent use of mercury and the intermittent use of arsphenamin. The intermittent use of mercury is a well-established treatment that has seldom given us the experience of nervous recurrence. In my opinion, and I think it is the opinion of many men, the intermittent use of arsphenamin, the giving of a single dose with a considerable intermission, has resulted in a largely increased number of nervous recurrences. That should be borne in mind in connection with this treatment.

Dr. Walter J. Heimann, New York: I think throughout this entire discussion and in the conception of the paper we are suffering from a lack of definiteness in terms. We have talked about intensive treatment, but the paper deals with sustained treatment. Dr. Fordyce calls attention to the fact that the paper does not point out in what stage Dr. Heidingsfeld got his results. I think in this connection there has been a hiatus in the paper which is otherwise plausible. The results reported by the author are remarkable, considering that the evidence of the world negates them.

Spirochetes may acquire a tolerance not only to arsenic but to any other drug. This fact was observed clinically many years ago in connection with mercury therapy, when we began to give interrupted instead of continuous treatment. Thus there is nothing new in learning that spirochetes become arsenic fast as they become mercury fast.

By intensive treatment is meant that in the early stages of the disease we give antispecific remedies massively and abundantly with the idea of abortion. Late syphilis cannot be aborted. We know that one injection of arsphenamin does not and cannot cure syphilis, either in its active or latent stages. So we have to fall back on our own experience to contradict Dr. Heidingsfeld's findings. We find patients who have had two injections several years ago still with clinical and serologic manifestations of syphilis. Neither do I agree with Dr. Sutton, who makes the choice, between arsphenamin and mercury, that one is better than the other. We do not treat syphilis with one drug, but with all the medicaments at our disposal. We do not adhere to a thesis, but use judgment. In concluding the discussion I wish Dr. Heidingsfeld would bring out more definitely what he meant by "intensive," whether there is anything new in his administration of mercury or iodid, whether he has noticed any difference in the early and late syphilis, and whether he has made controls not only with the blood Wassermann, but with the spinal fluid.

Dr. Henry R. Varney, Detroit: Dr. Heimann has summed things up very well, and while we have all changed our treatment of syphilis since arsphenamin has come to us, we are still free and open minded in regard to further changes. I have difficulty in getting patients to take enough treatment. I believe a large percentage are undertreated rather than overtreated. In discussing intensive treatment I believe we are at some variance regarding intensity. I would not like to rely on one dose of arsphenamin in primary syphilis. I think we should agree on one treatment for this stage. The early days of the initial lesion is the most important period in the treatment of syphilis, and in this we are agreed. Later on in the disease when patients show other manifestations of structure involvement the personal equation enters into the care and treatment of the disease. We see patients with syphilis who were in the Civil War and have never had any syphilitic treatment. I saw one such patient recently who said to me, "Why take treatment even if I have syphilis? I am perfectly well at 70," conveying the clinical evidence that many patients with syphilis live to an advanced age in average health without any syphilitic treatment.

Periods of rest are almost as important as periods of treatment. Change in the form of medication following a period of rest is productive of a more prompt result than a return to the same medication administered in the same manner. Alternating from arsphenamin to mercury and from mercury to arsphenamin is more beneficial than prolonged medication with only one drug.

It is extremely important to keep in mind that the first attack on the disease, whether it be arsphenamin or mercury, is the golden opportunity which comes to the physician and patient but once. The same effect is never produced by the second attack or medication. We recall the effect of our first cocktail or our first cigar, which has never been duplicated by the great number that followed. Therefore, the physician who has the opportunity to administer the first medication to the syphilitic has an opportunity for the control of that disease no other will have, it matters not the form of medication or the period of time elapsing between treatments. I, therefore, am a firm believer in the vigorous administration of the initial treatment, whether it be in the initial stages of the disease or in its later manifestations.

Dr. M. L. Heidingsfeld, Cincinnati: Inasmuch as the views herewith set forth are at variance with those of generally accepted practice, I anticipated much skepticism and possibly harsh criticism. What is herewith set forth is either correct or incorrect. If correct, the sooner it is known the better. The last word in regard to syphilitic therapy has not been said, and there is still much to be said, pro and con, before a definite decision will be reached. The chief criticism which has been offered is that the investigation does not go into sufficient detail, that it is not definitely stated at what stage each given case was treated. I feel assured that the work has been carried out in sufficient detail, and with sufficient personal scrutiny to make the results speak for themselves. To tabulate and correlate 1,133 cases of syphilis out of a dermatologic practice covering eight years, carefully enumerating serologic examinations, arsphenamin administrations, clinical progress or lack of progress and the ultimate results, is a sufficiently stupendous undertaking in and of itself without the addition of unnecessary and unimportant detail. In my syphilitic studies I have always felt that cases in private practice are the only ones dependable for investigation purposes. My work will bear the closest scrutiny. I, also, as well as Dr. Fordyce, have noted relapses of a malignant nature in dispensary and hospital practice, not only with one administration, but with many administrations of arsphenamin. These are the individuals who drink and dissipate and who by their personal conduct and excesses invite the worst of results in spite of every form of personal attention. Possibly I have been unfortunate in the caption of the paper. What the paper intends to set forth is the deleterious and untoward results from long sustained arsphenamin treatment. In other words, the system probably acquires tolerance for frequently repeated arsphenamin, the same as has been demonstrated for mercurials and other antispecific remedies, and that this tolerance is lost if the remedy is not repeated within an interval of at least four to six months. I can see excellent reasons for giving intense arsphenamin treatment, namely, two or three full doses within an interval of five to seven days, as advocated by Pollitzer, before an immunity has had time to establish itself. Theoretically, such a method of treatment would come more nearly fulfilling Erlich's idea of a "dosis sterilisans magna." Whether or not treatment of this kind will give better, indifferent or more unfavorable clinical results, time and a long series of carefully observed cases alone will tell. I contend, however, that definite judgment must be attended by study and observation of cases as outlined by this paper. I do not believe in the administration of a fractional dosage of arsphenamin. Fractional dosage merely helps to establish an early immunity. If arsphenamin is administered, it should be in full dosage, 6 decigrams, commensurate to 160 or 180 pounds body weight. I have not spoken about spinal puncture, inasmuch as I did not want to inject that greatly mooted feature into the paper. I do not practice it as a routine measure for reasons which I do not care at this moment to discuss. The formula for decoction Zittman presented in this paper was carefully copied from a German pharmacopeia with the assistance of a careful, painstaking pharmacist. There is no mercury in that formula. I do not doubt but what there are many modifications of this formula, some with mercury, some without.

My general impression for the past two or three years has been that interrupted administrations of arsphenamin, guided by careful serologic examinations, gave me uniformly good clinical results, far better than in cases that had been treated otherwise. When the results were tabulated, they were so much better than I had anticipated as to cause me some personal embarrassment. I searched for a possible error, and found none. I leave the results to speak for themselves.

Death Rate Increases.—The death rate for Philadelphia for 1917 was 17.0243 as compared with 16.1572 for 1916. The weather conditions, lack of coal and nourishing food helped to advance the total, and although the city was visited by no epidemic of infantile paralysis, the death rate among infants and very young children was higher than in 1916. The total number of deaths in 1917 were 29,546, as compared with 27,621 in 1916. This high total has occurred in spite of the maintenance of a large corps of city nurses and physicians in congested sections.

TREATMENT OF ACUTE POLIOMYELITIS WITH IMMUNE HORSE SERUM

FURTHER STUDIES [*]

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The demonstration that the somewhat peculiar streptococcus, isolated in poliomyelitis from time to time by various observers, has elective affinity for the central nervous system of young rabbits and guinea-pigs, producing symptoms and lesions resembling poliomyelitis in man,[1] indicated that this organism was no longer to be regarded as a mere secondary invader, but of real etiologic importance.

The possibility of developing a curative serum for poliomyelitis with this organism was first suggested in the experiments by Rosenow, Towne and Wheeler,[2] in which monkeys were protected against injections of virulent virus, and experiments in the immunization of horses were instituted. These fundamental observations stimulated a reinvestigation of the etiology of poliomyelitis and of its treatment.[3]

The serum from a horse (Horse 1), injected with freshly isolated strains from experimental poliomyelitis in monkeys, was found to protect monkeys against inoculation of virus[4] (corroborated recently by Nuzum and Willy[5]), to have definite curative effects in monkeys after the onset of paralysis, and apparently a powerful curative action in poliomyelitis in man. In a preliminary report[6] on the treatment of forty-four cases, these statements appear:

> All of the sixteen patients treated before paralysis had begun recovered without paralysis. . . . The apparent good effects from the injection of serum are often striking. The headache, nervousness, restlessness and tremor often disappear promptly. The temperature and pulse rate are lowered. A beginning paralysis often disappears in an astonishingly short time. A rapidly progressing paralysis is often arrested and improvement is unusually rapid. The postparalytic pains do not appear or are comparatively mild.

Nuzum and Willy[7] have since reported similar apparently striking benefits in a large series of cases following the use of an immune horse serum prepared in a similar manner.

The further results given in the detailed report[8] on the treatment of fifty-eight cases indicates that the serum has definite curative action in epidemic poliomyelitis. The series included one case of sporadic poliomyelitis in which equally good effects were noted.

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[*] From the Mayo Foundation

[*] Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, Preliminary Note, The Journal A. M. A., Oct. 21, 1916, pp. 1202-1205. Rosenow, E. C.; Towne, E. B., and von Hess, C. L.: The Elective Localization of Streptococci from Epidemic Poliomyelitis, Jour. Infect. Dis., 1918, **22**, 313-344.

[2] Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: Observations on Immunity of Monkeys to Experimental Poliomyelitis, The Journal A. M. A., Jan. 27, 1917, pp. 280-282.

[3] The reader is referred to a series of papers by the writer and his associates that appeared in the April number of the Journal of Infectious Diseases, 1918, **22**, 281-426. In these papers, contributions by other observers are discussed.

[4] Rosenow, E. C.: The Production of an Antipoliomyelitis Serum in Horses, The Journal A. M. A., July 28, 1917, pp. 261-265.

[5] Nuzum, J. W., and Willy, R. G.: Further Studies of an Antipoliomyelitic Serum: Its Protective and Curative Properties in Experimental Poliomyelitis in Monkeys, Jour. Infect. Dis., 1918, **22**, 258-270.

[6] Rosenow, E. C.: The Treatment of Epidemic Poliomyelitis with Immune Horse Serum: Preliminary Report, The Journal A. M. A., Sept. 29, 1917, pp. 1074-1075.

[7] Nuzum, J. W., and Willy, R. G.: Specific Serum Therapy of Epidemic Poliomyelitis, The Journal A. M. A., Oct. 13, 1917, pp. 1247-1254.

[8] Rosenow, E. C.: Report on the Treatment of Fifty-Eight Cases of Epidemic Poliomyelitis with Immune Horse Serum, Jour. Infect. Dis., 1918, **22**, 379-426.

It is my purpose to report in detail in this paper the results obtained in a number of cases of sporadic poliomyelitis, to record experiments on the use of the serum in experimental poliomyelitis in the rabbit, and to emphasize the importance of early diagnosis of this disease.

The serum used in the cases here reported, as in the series of cases of epidemic poliomyelitis, was injected intravenously and not intraspinally, as it had been found that intravenous injections were necessary to protect monkeys against intracerebral inoculations of virus.[4] Intraspinal injections of horse serum, as has been shown by Flexner and Amoss,[9] increase markedly the susceptibility of monkeys to poliomyelitis, so much so as to render them susceptible to intravenous injections of virus. The largely negative results, as reported by Amoss and Eberson,[10] on the therapeutic power of my serum in monkeys, would appear to be due to the fact that they gave exclusively intraspinal injections instead of intravenous injections. To facilitate slow injection (1 c.c. per minute) the serum was diluted with an equal quantity of salt solution, but was not activated with guinea-pig complement.

REPORT OF CASES

CASES IN WHICH THERE WAS SLIGHT PARALYSIS AT THE TIME OF SERUM TREATMENT

Fig. 1.—Rabbit 1477, showing marked weakness of fore extremities forty-eight hours after the intravenous injection of the culture from the tonsil in Case 1 after one animal passage.

Case 1 (1042).—E. T. P., a boy, aged 19 months, a patient of Dr. C. T. Granger, Rochester, Minn., seen, Dec. 23, 1917, had been fussy for a few days, owing, it was believed, to teething, since two teeth were in the process of eruption. For two weeks the patient's two sisters had had colds, running of the nose and cough, but they were apparently free from fever. During the previous night the child had been restless; he slept at intervals, but frequently awakened. There was no noticeable fever. He had had two loose, foul-smelling stools the day previously, but there was no vomiting. During the night a weakness of the muscles of the neck was noticed, the child being scarcely able to hold up his head. At 10 a. m. he was found lying on a couch with the head retracted, eyes partly open and with frequent twitchings of the right arm and legs. On being aroused he showed a decided mental apathy, marked tremor and ataxia, and rigidity at the neck. The face was symmetrical. The tongue protruded slightly to the left. He was able to stand, and to hold the head erect, but was unable to get up unassisted, and in sitting down repeatedly fell to the floor quite limp. The left knee jerk was normal, the right was exaggerated, and the reflexes of the upper extremities were normal. The temperature was 100.4. When a spinal puncture was made, the weakness of the legs and muscles of the back became very noticeable. The spinal fluid spurted, and 10 c.c. were withdrawn; but owing to the presence of traumatic blood, a cell count and globulin test could not be made. A differential cell count, made of a stained specimen of the sediment, showed 70 per cent. mononuclear cells. Ten c.c. of serum were injected. The child slept quietly for three hours after the serum was given, and with less twitching of the muscles. At 5 p. m. the temperature was 100. He looked brighter, sat up, and stood without tremor. Retraction and rigidity of the neck was less marked, but still evident. He was able to get up from a lying position unassisted, and walked readily, but was still somewhat weak and unsteady. The tongue protruded in the median line. There was no weakness of the arms. The knee jerks had become normal and equal.

December 24, 1 p. m., the child looked brighter, and tremor and tremulousness had disappeared. He had slept well during the night. He sat up unassisted, and stood and walked without support, but there was still some weakness of the muscles of the back, noticeable when he was sitting down. The temperature was normal, the face symmetrical, the tongue protruded in the median line, and the retraction and rigidity of the neck were absent. The knee jerks were normal. Eight c.c. of serum were injected.

December 25, no weakness could be made out. The child appeared well. Recovery was complete.

Case 2 (2008).—L. R. B., a boy, aged 2 years, a patient of Dr. G. T. Joyce, Rochester, Minn., April 3, 1918, at about 2 o'clock in the afternoon, was acting peculiarly; he was fussy, and it was discovered that he was unable to walk on account of weakness in the legs. He had had diarrhea the day previously, with four or five watery stools of extremely foul odor. There was no apparent fever, but a cough developed during the morning, as a result, presumably, of exposure to whooping cough three weeks and ten days previously. At 9:30 p. m. the child was entirely unable to bear weight on the legs, and in repeated efforts to do so the legs gave way at the knees; the left leg was weaker than the right. There was no swelling of the joints, and no complaint of pain. The child was well nourished. The left knee jerk was barely obtainable, the right only slightly diminished. The spinal fluid was under increased pressure, was clear, and 6 c.c. were withdrawn. The cell count was 21, the globulin test was strongly positive, flocculation occurring almost immediately. Twelve c.c. of serum were injected.

April 4, 8:30 a. m., after the child had slept all night without restlessness, turning over in bed normally a number of times during the night, there was no tremor, he looked well and could walk without support, but some weakness of the legs was still evident. Knee jerks were normal. The injection of serum was repeated. At 9 p. m. the child walked readily without assistance, and without apparent weakness. The reflexes were normal, and he appeared well in every respect. Recovery was complete.

CASE SHOWING ADVANCED PROGRESSING PARALYSIS AT THE TIME OF SERUM TREATMENT

Case 3 (1078).—C. A., a boy, aged 2 years, a patient of Dr. G. T. Joyce, Rochester, Minn., Feb. 24, 1918, was weak, poorly nourished, pale, and had had several attacks of severe anemia. He had been fussy, cross, feverish and irritable for two days. He had not walked normally and had fallen easily, once from the doorstep, the day previously. He vomited repeatedly during the morning and was feverish, but had no diarrhea. Mumps was epidemic in the neighborhood; the mother had it three weeks previously, and the fever and illness of the child were thought to be due to mumps because there was a swelling in the region of the left parotid. At 6 o'clock he had severe convulsive seizures with marked spasms of the right side of the face, the right eye and the right arm, but also spasms and twitchings of the muscles of the left side. The right arm became completely helpless within one hour. At 10:30 p. m. there was moderate swelling in the region of the left parotid, a complete flaccid paralysis of the right arm, which dropped limply to the side when lifted, and inability to close the right

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9. Flexner, Simon, and Amoss, H. L.: The Relation of the Meninges and Choroid Plexus to Poliomyelitic Infection, Jour. Exper. Med., 1917, **25**, 525-531.

10. Amoss, H. L., and Eberson, F.: Therapeutic Experience with Rosenow's Poliomyelitic Serum, Jour Exper. Med., 1918, **27**, 309-317.

eye. The right side of the face was drawn markedly, especially when the child cried. There was weakness of the muscles of the right side of the neck, the head tending to fall forward and to the left. He could just stand, but was unable to get up alone. There was moderate retraction and rigidity of the neck, and weakness of the right leg, and the right foot was rotated outward. Attempts at flexion of the head caused severe pain. The knee jerks were exaggerated; the reflexes in the right forearm were barely obtainable, and the triceps and biceps reflexes were absent. The temperature was 97, and the pulse was rapid. The child took no interest in his surroundings and cried apathetically when handled; but as soon as left alone he went back into a semicomatose sleep. The spinal fluid was under increased pressure. Eight c.c. of slightly turbid fluid were withdrawn. The cell count was 550, and the globulin test strongly positive. The Wassermann test of the spinal fluid proved negative. Twelve c.c. of serum were injected.

February, 25, 9 a. m., after a quiet night, the child closed the right eye readily and appeared brighter, but complained of pain in the left foot. The face was less drawn. The reflexes were stronger and the biceps and triceps reflexes were easily obtainable. The strength in the right arm was decidedly greater; he could lift it from the bed in turning over, and offered decided resistance when it was moved. Ten c.c. of serum were injected. At 8 p. m. the temperature was 98. The child had been restless for several hours after the serum was given, moving the right arm markedly four times during the afternoon. He slept naturally with face symmetrical, and with both eyes closed. The swelling of the left parotid was more marked, he appeared brighter, and took an interest in his surroundings. The face was less drawn when he cried and the head was held erect. There was no rigidity of the neck, the arm and forearm were moved, and the fingers were flexed quite vigorously on repeated tests. The knee jerks, and the reflexes of the right arm and forearm were normal. Ten c.c. of serum were given.

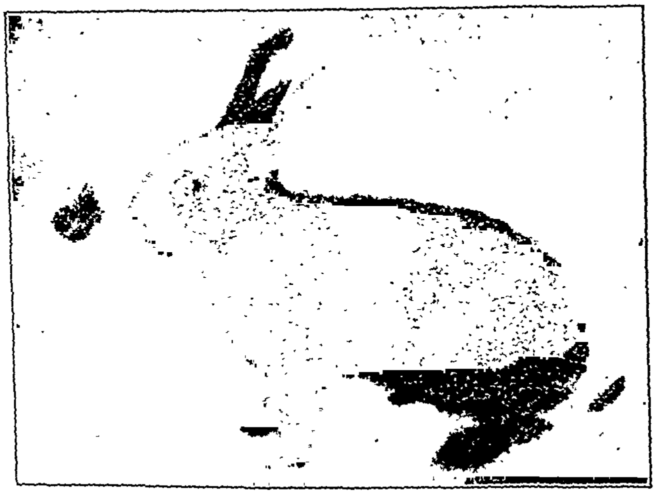

Fig. 2.—Rabbit shown in Figure 1 five hours after serum treatment.

February 26, 9 a. m., it was reported that the child had slept well, and eaten breakfast with relish. The swelling in the left cheek had diminished, the face was symmetrical when at rest and only slightly asymmetrical when he cried. The right arm was moved with considerable power. Ten c.c. of serum were injected. At 8 p. m. the right arm was decidedly stronger.

February 27, 8 a. m., the condition was about the same as the night before. At 8 p. m., the child was about the same, but had been more fussy and cross during the afternoon.

February 28, 9 a. m., there was no improvement in the condition. At 9 p. m. the condition had not improved. The child complained of pain in the right leg during the afternoon, and was unable to walk unassisted. Ten c.c. of serum were given.

March 1, 9 a. m., the child was able to walk and get up on his feet unassisted; he appeared brighter, the face was less drawn, the eyes closed completely, and power in the right arm was decidedly greater. Ten c.c. of serum were given. At 8 p. m. there was decided improvement in the power of the right arm; the reflexes were normal.

March 2, 8 a. m., the child walked without apparent weakness in the legs. The face was symmetrical. The strength in the shoulder group of muscles on the right side was decidedly improved; the reflexes were normal.

March 10, 8 p. m., the child appeared well. The power in the right arm was quite marked; he grasped fingers with vigor, but used the hand little. He walked without limp. The face was symmetrical, with no swelling of the left parotid gland. He broke his right leg, which was placed in a cast, and further observations were temporarily interfered with.

June 3, the child looked puny and poorly nourished. The face was symmetrical. He moved the right arm in every direction, but the extensors of the fingers were still weak. There was slight dragging of the right foot, but he walked without apparent weakness in the leg or back. The reflexes were normal.

CASE SHOWING MARKED PARALYSIS TEN DAYS AFTER ONSET

CASE 4 (1024).—N. F., a boy, aged 2 years, a patient of Dr. Morris Bachman, Lake Park, Iowa, and of the Mayo Clinic, had been taken sick two weeks previously with a high fever which lasted four days. Nov. 3, 1917, there was a slight soreness of the throat, and stiffness of the neck; there was no vomiting or diarrhea, but marked constipation. On the fourth day the child developed marked weakness in the muscles of the legs and back, and on the seventh day, weakness of the right arm. On examination pus was expressed from the left tonsil, which was larger than the right, and an enlarged peritonsillar gland was found on the left side, but none on the right. The child showed a marked disinclination to walk, and complained of pains in the legs. He was still very restless and irritable, and awakened at night, calling out in his sleep. Power in the legs had increased definitely, but there was marked weakness in the right leg, the right arm and the muscles of the back. The right knee jerk was barely obtainable and the left was normal. The child could move the right arm in all directions, but with impaired power. At 10 a. m. a spinal puncture revealed spinal fluid under moderate pressure, and 5 c.c. were withdrawn. The cell count was 16, the globulin test markedly positive. Twelve c.c. of serum were injected.

November 4, he had slept for five hours without waking, following the injection of serum, but had a restless night.

November 5, he slept soundly through the night without waking, for the first time since he became ill. He looked brighter and was much less fussy, the disinclination to walk had disappeared, and he no longer complained of pain in the right leg. He was able to roll over in bed and with the right foot could kick a hand held above the bed, neither of which he could do the day previously.

December 18, the child was perfectly well, walking and running without recognizable limp. The reflexes were normal.

CASE OF DOUBTFUL DIAGNOSIS

CASE 5 (1056).—O. I. J., a girl, aged 2 years, a patient of Dr. George Stevens, Byron, Minn., ten days previously had gone to bed perfectly well, and the following morning a slight limp was noted in the right leg, which persisted. Jan. 15, 1918, there was pain in the region of the right knee and the outer aspect of the right leg was complained of. The temperature was 100. A cough had developed, due to a cold; the mother also had a cold. There was a doubtful tendency to toedrop on the right side. The child appeared quite well. The reflexes were normal; there were no twitchings, retraction or rigidity of the neck and no pain in the back on flexion. The tonsils were large, and the crypts were filled with numerous quite hard brownish-gray plugs which could be easily expressed. There were no palpable glands in the neck. Spinal puncture revealed fluid under normal pressure, and 4 c.c. of clear fluid were withdrawn which was negative for cells and globulin test. Twelve and five-tenths c.c. of serum were injected.

January 16, there was no change in the condition.

January 18, the child limped a little. Recovery was complete.

CASE OF TUBERCULOUS MENINGITIS

Case 6 (1095).—M. O., a girl, aged 8 years, a patient of Dr. G. O. Fortney, Zumbrota, Minn., and of the Mayo Clinic, seen, March 17, 1918, had complained of pain in the right hip, in the fall of 1917, especially at night, and soon developed a limp and pain on walking, which gradually progressed until February, 1918, when she was placed in a cast. One week previously she complained of constant headache, pain in the back, and photophobia. There was loss of appetite and vomiting of everything taken. The morning temperature was 101; the afternoon temperature was 99, and the pulse was slow.

March 19, the spinal fluid was clear, the cell count 178, and the globulin test positive.

March 20, cultures from the spinal fluid in glucose broth showed pure culture of short-chained streptococcus. The patient was stuporous and apathetic, and was unable to open her eyes more than 1 cm., the upper lids dropping, the right more than the left. There was undoubted weakness in the muscles of the right side of the face, manifested as the patient showed her teeth. There was no nystagmus. The tongue was tremulous, but protruded, in the median line. The triceps and biceps reflexes on both sides were absent. Knee jerks were present. There was decided rigidity of the neck. Grasping power in both hands was slight, but she could move her arms in all directions. At 2 p. m., owing to the finding of the streptococcus in the spinal fluid, and the beginning of paralysis in the muscles of the face and upper extremities, 25 c.c. of serum were injected intravenously. At 3:20 p. m. she had a decided chill, the pulse was 120 and there were 2 degrees of rise in temperature, but no other change.

March 21, the general condition remained about the same; the left eyelid drooped decidedly, and the weakness in the arms had grown more marked. The blood agar plate of the culture obtained from the spinal fluid showed countless numbers of indifferent colonies of streptococci, which were not agglutinated by poliomyelitis serum. A second culture of the spinal fluid proved negative.

March 22, the patient was stuporous. There was ptosis of the left eyelid; both pupils were dilated, and did not react to light. She did not move the right arm, and still evinced dislike to being touched or examined. The rigidity of the neck was more marked, and there was slight opisthotonos. Death occurred at 10:25 p. m. The findings at necropsy were typical of tuberculous meningitis.

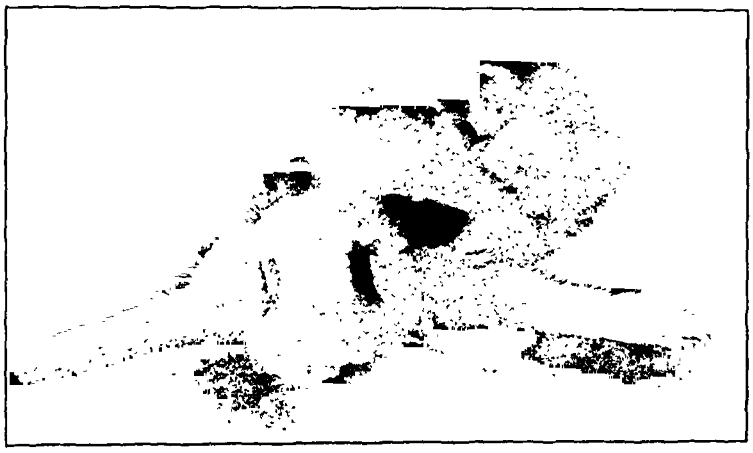

Fig. 3.—Rabbit 1481, showing marked weakness of all extremities nine days after the first and two days after the second injection of the same strain after two animal passages.

SUMMARY OF CASES

The two patients (Cases 1 and 2) that were treated before marked paralysis had occurred showed the most striking benefit, as did those in the epidemic form of the disease, both recovering completely within forty-eight hours. The result in the child with mumps (Case 3), who was markedly under size, anemic and poorly nourished, who had convulsions followed by an extensive weakness on the right side of the body, and complete paralysis of the right arm, and a high cell count in the spinal fluid, was less striking, but unmistakable improvement followed each injection. The patient (Case 4) in whom the serum was given ten days after the onset of paralysis, likewise appeared benefited. In Case 5, in which the diagnosis was very doubtful, and in Case 6, which proved to be tuberculous meningitis, the results, as was to be expected, were indifferent.

The primary culture from the pus from the tonsil of Case 1 was injected into one rabbit, which died with marked invasion of the central nervous system, and from which a pure culture of the characteristic streptococcus was isolated.

In the earlier work on elective localization it was the rule to inject the streptococcus from poliomyelitis soon after its isolation. In order to determine whether the peculiar localizing power could be maintained through many subcultures, and thus rule out all possibility of carrying over "virus," subcultures in glucose brain broth were made from every three to eight hours, and the nineteenth culture generation was injected intravenously in rabbits. All but three of ten rabbits developed paralysis or showed elective localization.

The symptoms in the rabbit following injection of these strains are usually marked and progress rapidly, the animals dying in convulsions or from paralysis of the muscles of respiration. The amount of infiltration in the nervous system is mild as compared with that in man and in the monkey.

These conditions were thought favorable to test the efficacy of the serum, and a series of rabbits which showed paralysis were treated with it. The rabbits seemingly derived marked benefit. Injections of normal horse serum had no apparent effect.

REPORTS OF TWO ILLUSTRATIVE EXPERIMENTS

Experiment 1. — Rabbit 1477, weighing 1,009 gm. was injected intravenously, Jan. 8, 1918, with 7 c.c. of glucose brain broth culture, in the nineteenth subculture after one animal passage.

January 10, 3 p. m., the animal was found in the cage apparently quite well, but there was continuous fine tremor of the muscles of the whole body, frequently twitching and mild clonic spasms of the muscles of the neck. It was extremely hyperesthetic, and the head was slightly retracted at times. When it was placed on a smooth surface, undoubted weakness of the anterior extremities was noted, particularly in the adductors (Fig. 1). Respirations were rapid, and there was marked salivation. The temperature was 104.8. At 3:20 p. m., the weakness in the anterior extremities was more marked; the tremor and spasms were less marked in the anterior extremities, but extended to the hind extremities, and the paralysis was rapidly increasing. The animal was entirely unable to bear its weight on the front extremities and had difficulty in getting its hind legs under the body. Tremor was markedly increased when it was lifted from the cage. At 3:45 p. m., 1 c.c. of serum from Horse 1, with an equal quantity of salt solution, was injected intravenously. At 4:20 p. m., there was less weakness, and tremor and spasms were limited to the muscles of the head. The front legs were undoubtedly stronger and did not spread out as much in walking on a smooth surface. Salivation was less marked. The temperature was 105. The injection of serum was repeated. At 4:45 p. m., the tremor was limited to the muscles of the jaw and neck; the fore extremities were stronger, and there was much less tremor when it was lifted from the basket. The fore legs spread slightly; the weakness in the hind legs was less marked. Salivation was absent. At 5:15 p. m., the picture had entirely changed; the animal was eating carrot and walked without difficulty and without evidence of weakness. Tremor was entirely absent, and the respirations were diminished. At 6 p. m., it appeared quite well. Salivation and tremor were entirely absent. There was slight twitching of the muscles of the front legs when it was lifted from the basket. It walked normally on a smooth surface. The respirations were nearly normal. The temperature was 103.6. At 7 p. m., it appeared well, the respirations were normal, and salivation and tremor were absent even when it was lifted from the basket. It walked without manifest weakness. There was no retraction of the head. The temperature was 101.8. At 7:30 p. m., it appeared well, and jumped from a platform 2 feet high without evidence of weakness in the extremities while a moving picture was being taken. At 9 p. m., the animal ate carrot with relish (Fig. 2) and jumped out of the basket and ran about on the floor normally, without tremor. There was no hyperesthesia.

January 11, 6:45 a. m., the animal had escaped from the basket and was found running about on the floor apparently perfectly well with no sign of weakness anywhere. It was hungry and ate carrot ravenously. It was observed all day and appeared well, with no sign of return of symptoms.

January 12, 7:30 a. m., the animal appeared well. At 12 m. a decided tremor of the head and fore extremities was noted when it was lifted from the basket, but no weakness of the extremities was evident. At 2:20 p. m., the tremor had become decidedly more marked. The serum injection was repeated. At 6 p. m., it appeared well; there was no tremor on handling, and no weakness. At 9 p. m., the condition was unchanged.

January 19, the animal was perfectly well and active, with no sign of weakness anywhere. It remained perfectly well until May 2, when it died from snuffles, which was epidemic in the laboratory at that time.

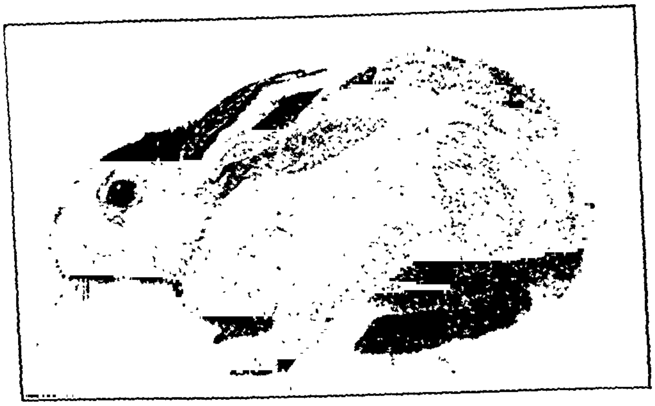

Fig. 4.—Rabbit shown in Figure 3 fourteen hours after serum treatment.

EXPERIMENT 2. — Rabbit 1481, weighing 1,060 gm., was injected, Jan. 11, 1918, the same as Rabbit 1477.

January 12, the animal appeared well.

January 17, the animal appeared well and was injected intravenously with a six-hour culture in glucose brain broth of the same strain after two animal passages.

January 18, there was undoubted weakness of the left fore leg, which went into spasm in the extended position when the animal was lifted by the ears. Both forelegs spread out widely when it was placed on a smooth surface, the left more marked than the right. There was no tremor.

January 19, there was marked extensor and adductor weakness of the forelegs, especially the left, and slight tremor of the anterior part of the body but no retraction of the head.

January 20, 11 a. m., the animal was scarcely able to extend the front paws. Both legs tended to spread out widely in an attempt to stand on a smooth surface. The anterior part of the body trembled markedly in the attempt to walk, but there was no apparent weakness in the hind legs. There was marked loss in weight. At 1 p. m., weakness was more marked in the anterior extremities. At 5:30 p. m., the condition was worse, the animal being just able to bear weight on the front extremities. There was tremor and a tendency to spasm of the hind legs, with some difficulty in maintaining balance, and evidence of weakness in the muscles of the hind extremities. At 6:30 p. m., the paralysis was rapidly growing worse, the animal was unable to get its hind legs under it after they were extended, and it was entirely unable to bear weight on the front or hind extremities when on a smooth surface. The respirations were shallow, irregular and almost entirely abdominal. The ears were cold and drooped markedly (Fig. 3). The temperature was 100.8. One c.c. of serum of Horse 1, and 1 c.c. of salt solution were injected intravenously. After the injection the animal was placed in a cage, utterly unable to walk or stand. At 7:30 p. m., it was found in the opposite corner of the cage, 2½ feet from the place where it was left an hour previously. It stood with the chest from the floor of the cage, and was just able to walk. The temperature was 101. There was a tendency to spasm of the hind legs when it was lifted from the cage. The injection of serum was repeated. At 8 p. m., it was found hopping about in the cage, and it ate greens with relish. The respirations had become regular, and expansions of the chest had become greater. At 9 p. m., it was hopping about in the cage and ate greens and oats. On being placed on a smooth surface it was able to stand erect without the paws slipping from under it, and it walked about with little weakness except the extensor weakness of the left paw. The power of the muscles in the ears had returned. The respirations were normal, and there was no tremor. The temperature was 102. The injection of serum was repeated.

January 21, 7:15 a. m., it appeared well, ate carrot with a relish, and hopped about the cage quite normally. When it was placed on a smooth surface, no weakness could be demonstrated (Fig. 4). There was sufficient strength to raise the weight of the body in its attempts to get on the top of a microscope case. It ate normally, its ears no longer drooped, the respirations were normal, and the temperature was 101. The animal appeared perfectly well until January 25, when it was found dead. There were no lesions of the central nervous system, cultures of the brain and cord were negative, and the liver showed marked coccidiosis.

CONCLUSIONS

The results in acute sporadic poliomyelitis, as in the epidemic form of the disease, and in experimental poliomyelitis in the rabbit, are so strikingly favorable as to leave little doubt regarding the value of this treatment. Therefore, the importance of recognizing poliomyelitis early is evident, as it never has been heretofore.

It cannot be too strongly emphasized that this disease has a quite characteristic syndrome, as has been emphasized by Draper,[11] Peabody[12] and others, which should lead to its tentative diagnosis, and to the immediate making of spinal puncture for conclusive diagnostic tests. If a patient has symptoms which suggest involvement of the central nervous system, and shows an increased amount of spinal fluid, an increased number of cells with mononuclears predominating, and a positive globulin test, the serum should be administered immediately. If further study should prove the symptoms due to some cause other than poliomyelitis, no harm will have been done, while if the treatment is delayed, irreparable harm may occur.

It is realized that a large number of patients must be treated before final conclusions can be drawn. Since the sporadic form appears also to yield to the treatment, there should be a supply of the serum in the hands of many.

A large amount of serum, believed to be as effective as that used thus far, is on hand, and will be sent gratis to any one who has an opportunity to use it, and who will furnish records of cases.

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[11] Draper, George: Acute Poliomyelitis, Philadelphia, P. Blakiston's Son & Co., 1917.

[12] Peabody, F. W.: A Report of the Harvard Infantile Paralysis Commission on the Diagnosis and Treatment of Acute Cases of the Disease During 1916, Boston Med. and Surg. Jour., 1917, **176**, 637-642.

ABSTRACT OF DISCUSSION

Dr. P. S. Roy, Washington, D. C.: I wish Dr Rosenow would tell us what change has taken place in nerve tissues which respond so quickly to treatment. It is almost analogous to the changes in polyneuritis or beriberi in pigeons. If you pour yeast vitamins down that pigeon's throat it will get well in a few hours. It is very interesting to know what change takes place in nerve cells which are completely restored to action in three hours.

Dr. E. C. Rosenow, Rochester, Minn.: There is much evidence to believe that loss of muscle power in poliomyelitis does not necessarily mean the death of the motor cells in the anterior horns. The paralysis may, in part, be the result of inhibition of physiologic function due, early, to the toxic effect of the micro-organism causing the disease, and late, to lack of oxygen or nutrition from infiltration. The fact that paralysis which starts to disappear soon after the acute attack is more prone to disappear entirely than when improvement begins late, indicates that this is true. The very prompt restoration of function which is observed following the injection of my antipoliomyelitis horse serum containing neutralizing substances is thus to be expected. In the case of the rabbit, the paralysis, and even death from respiratory failure appear to be due in many instances to inhibition of physiologic function of the ganglion cells in the anterior horns. The amount of infiltration is relatively slight, hence the immediate striking beneficial effects noted in this species following injection of the neutralizing serum.

AN OPERATION FOR STABILIZING THE FOOT AND ANKLE IN POLIOMYELITIS

A FURTHER REPORT *

FRANK E. PECKHAM, M.D.
PROVIDENCE, R. I.

In cases of poliomyelitis with paralyzed foot muscles, the foot is usually equinus, equinovarus or valgus. In the treatment of such cases, operative measures would not be considered until a long time had elapsed after the acute attack and until all remedial measures had been exhausted. There comes a time, however, when something has to be done with deformity, and when tenotomies and brace wearing are not very satisfactory. The brace wearing is never kept up very long with any degree of efficiency, and after a while parents become tired and careless and give up all mechanical treatment.

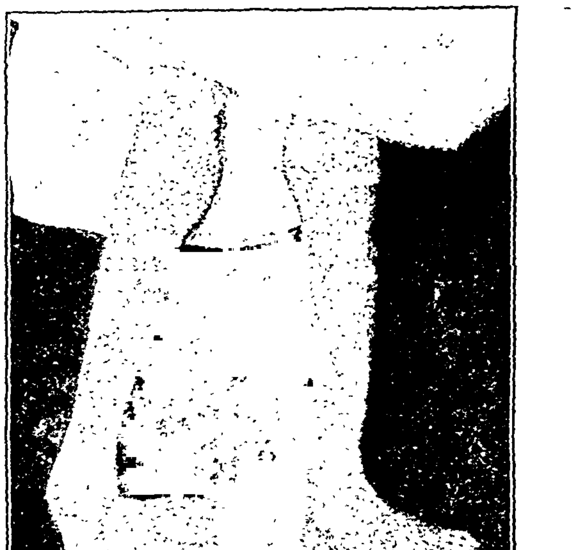

Fig. 1 (Case 1).—Right talipes equinus varus and left talipes valgus.

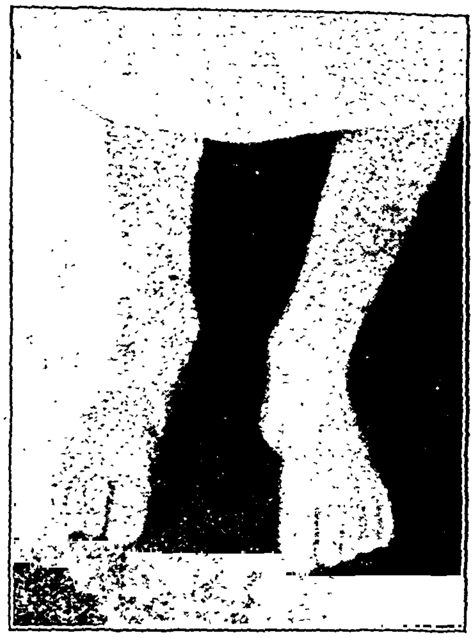

Fig. 2 (Case 1).—Patient standing on the feet after correction.

At the meeting of the American Orthopedic Association in Philadelphia, Dr. G. G. Davis impressed on us the importance of in some way getting these children into such a condition that they could walk fairly well without apparatus of any kind. It was to accomplish some such result that the operation in question was devised. It was described[1] in 1917, and again[2] in 1918. The results seem to be so satisfactory and so permanent that I shall describe the technic once more. Perhaps this is best done by reporting the first case in detail:

Case 1.—E. F., a boy, had an acute attack of poliomyelitis at 11 months of age. An operation was performed in August, 1917, when the patient was 7 years of age. Figures 1 and 2 show the right equinovarus and left valgus deformity. The position of the feet had first been corrected by tenotomies and held in such position for four weeks. On the right foot the fascia transplant operation consisted of first removing a piece of fascia lata from 2 to 2½ inches wide the whole length of the thigh. An incision was then made nearly the whole length of the leg. A second incision was made through the tough fascia which surrounds the tendons. These tendons were then dissected out and separated clear down to the annular ligament. In this case the tendons separated were the common extensor and the peroneus longus. The fascia covering the common extensor was split its whole length on the side nearest the crest of the tibia. The fascia lata was then stitched around the tendons at the lowest possible point in such a manner as to form a cuff. The dissected surface was placed next to the tendons and muscle. After this cuff of fascia was securely fastened the foot was held in an overcorrected position, while the upper end of the strip of fascia lata was firmly attached to the split tendon fascia at the upper end of the tibia or leg. Then, at the lower end, again the strip of fascia lata was split to allow for a separate cuff to be arranged around the tendon of the peroneus longus, and the upper end was thoroughly attached in the same manner as described above. Then the sides or edges of the fascia transplant were stitched firmly to the edges of the split tendon fascia all the way up and down the leg, and incidentally to the muscle bellies as well. Through all this time the foot was held firmly in the overcorrected position. When this part of the operation was completed the skin incision was closed with silkworm-gut.

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* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Peckham, F. E.: Paper read before the American Orthopedic Association, May, 1917.

[2] Peckham, F. E.: Rhode Island Med. Jour., 1918, 2, 35.

So firm is the anchorage in such an operation that the foot remains in the corrected position without any mechanical assistance; consequently no plaster of Paris is necessary. A strip of adhesive plaster is applied, however, beginning at the top on the inside of the leg, passing down under the anterior part of the foot and up on the outside of the leg. This steadies the foot sufficiently and is all the fixation I now use. The patient is usually kept in the hospital in bed for six weeks, then sent home and asked to report in two weeks. I have applied braces for six or eight weeks while they are beginning to walk again, but I feel pretty sure that even this is unnecessary.

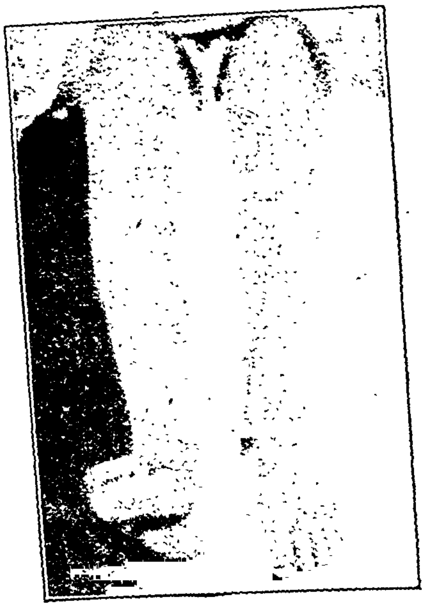

Fig. 3 (Case 2).—Right foot held at right angle by muscular effort. Left foot hanging on account of paralysis.

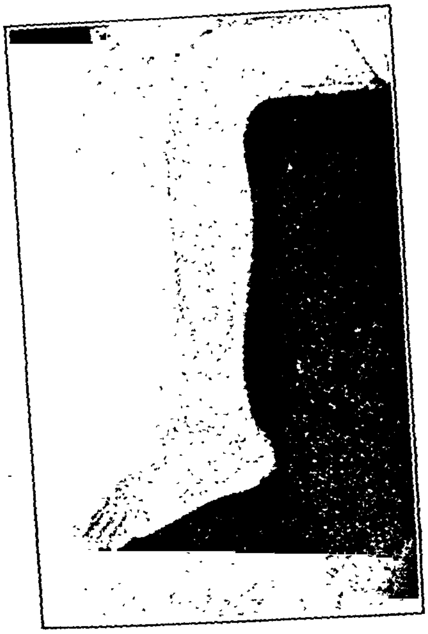

Fig. 4 (Case 2).—Lateral view of hanging foot.

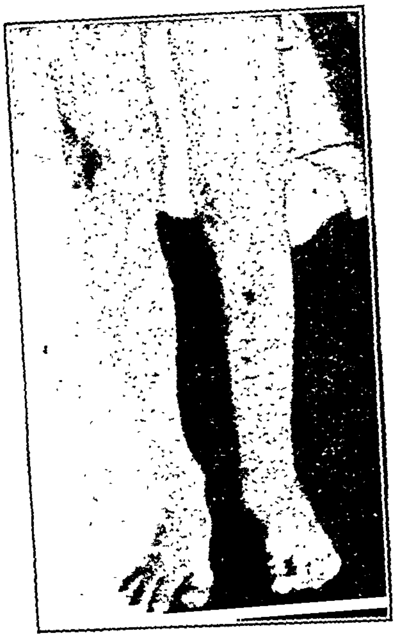

Fig. 5 (Case 2).—Patient standing on foot. This patient was operated on in August, 1917, and during the past winter went skating.

The left or valgus foot was treated as will be described in Case 2:

Case 2.—I. M., a girl, had an attack of poliomyelitis at the age of 1 year and 3 months, and the operation was performed in August, 1917, when the patient was 8 years and 11 months of age. This was a talipes valgus in which the tibialis anticus and posticus were the paralyzed muscles. Figures 3 and 4 show how the toe drops. An operation similar to the one described in the foregoing was performed, except that the two inner tibial muscles were the ones anchored.

The correction in position is shown in Figure 5. When the mother brought the child for observation this spring she said that the little girl had been skating on it all winter. This would seem to demonstrate functional ability.

The advantage of the operation is that there is a long anchorage, nearly the whole length of the leg, from which so far there has been no giving way. These children walk without any apparatus, and practically do a heel and toe walk because with the foot held they strike on the heel. Then the remaining good muscle, whether it is the tibialis anticus or the common extensor, steadies the foot while the Achilles tendon pulls up the heel.

This operation has been useful, and to the parents very satisfactory, because their children not only walk, but are walking without braces of any kind.

249 Thayer Street.

ABSTRACT OF DISCUSSION

Dr. Walter G. Stern, Cleveland: I had an experience similar to that which Dr. Peckham has had, in doing the Gallie operation. We found that we did not get enough surface for perfect fixation. I think it is more simple to do the operation devised by Putti, that is, putting the severed tendon through a hole in the bone and sewing it firmly. With the extreme anchorage of Dr. Peckham's operation the results —as we have heard from this paper—must be quite satisfactory and permanent.

Dr. Frank E. Peckham, Providence, R. I.: I can only say that in doing the Gallie operation, and also the Putti, I did not get absolute anchorage. Each one has to figure out what he can do best.

Workmen's Health Insurance.—The *American Labor Legislation Review* for the first quarter of 1918 summarizes the legislation enacted in 1917 providing for official studies of workmen's health insurance. Commissions were appointed in several states to report to the legislatures in 1919: in California, to report on social insurance; in Connecticut, on health insurance, old age pensions, free employment bureaus, hours of labor, minimum wage, and nine other topics relating to agriculture and business; in Illinois, on sickness and accidents of employees and their families not covered by workmen's compensation, etc.; in Massachusetts, on the alleviation of poverty due to sickness, the provision of medical care for wage earners, the health of wage earners and conditions of work, and existing insurance system; in New Hampshire, on health insurance and workmen's compensation; in New Jersey, on the operation of pension, annuity and insurance systems; in Ohio, on sickness, causes, influence of working and living conditions, etc., prevention of sickness, health insurance and old age insurance; in Pennsylvania, on sickness and accidents of employees and their families not covered by workmen's compensation loss resulting from sickness to individuals and the public, adequacy of present methods of treatment and care on meeting financial loss, influence of working conditions on health, and sickness prevention; in Wisconsin, to report on insurance against sickness and occupational disease.

DIAGNOSIS OF URETERAL CALCULI AND TECHNIC OF REMOVAL WITHOUT OPERATION *

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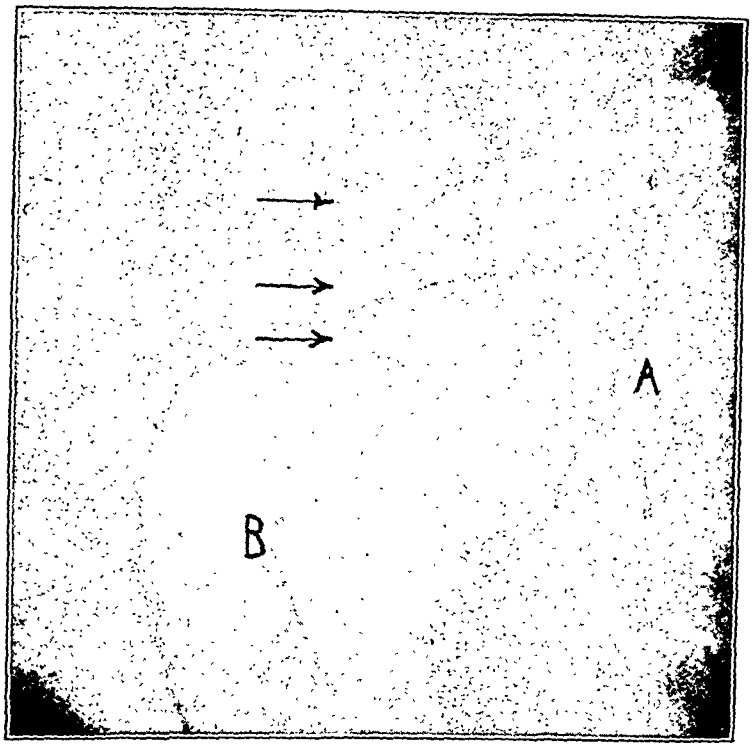
AND
S. R. THOMPSON, M.D.
CHARLOTTE, N. C.

The purpose of this paper is to describe our technic of removing ureteral calculi without operation. The plan was mentioned in 1915 by one of us,[1] but the technic was not fully described, as a sufficient number of cases had not been treated by the method to justify us in making any special claims for it. After the lapse of three years, and after having treated thirty-one cases in this way, we are now prepared to assert that practically every recently impacted ureteral calculus can be removed by this plan if treatment is begun before the secretory power of the kidney is inhibited.



Three impacted stones removed without operation: *A*, spinal column; *B*, catheter in ureter; arrows point to impacted ureteral stones.

We will not enumerate the clinical symptoms, since they are so typical that their rehearsal would be superfluous, but will proceed to discuss our plan of treatment and briefly report a series of cases.

The points of election for ureteral stone impaction are: first, at the junction of the ureter with the kidney pelvis; second, at the pelvic brim, and third, just above the ureteral entrance into the bladder, as shown in the accompanying illustration.

The plan of treatment is dependent on, first, the location and size of the stone; second, the length of time impaction has persisted, and third, the amount of damage done the secretory power of the kidneys by back pressure or infection or both. If the obstruction has been complete, without infection, for a period of three months, the secretory power of the kidneys is destroyed, and the removal of the stones by our method is impracticable. If infection and disintegration have taken place, the condition is surgical, and its discussion is out of the province of this paper.

This method to us was original, as we have seen nothing in the literature recommending the use of cocain for the removal of ureteral stones previous to that time. Since then a great deal has been written about the use of local anesthesia, electrically heated catheters, special ureteral dilators, fulguration, etc. Our results have been so uniformly good with cocain, procain and oil that we have preferred perfecting our technic in this plan of treatment.

It occurred to one of us (A. J. C.) while endeavoring to remove a ureteral calculus from the ureter of a patient, Feb. 2, 1915, that the pain might be relieved and the muscular fibers of the ureter relaxed by injecting a solution of cocain at the site of the impacted stone. Accordingly 2 c.c. of a 2 per cent. solution of cocain were injected. In two or three minutes' time the spasm was so relaxed that the catheter easily passed beyond the stone. Ten c.c. of sterile olive oil were injected and the catheter removed. Cystoscopy, on the following day, demonstrated the presence of the stone in the bladder. We were thus encouraged to continue its use, and have worked out the following technic:

A No. 5 bismuth catheter is passed into the ureter until it meets resistance. A roentgenogram is taken to ascertain further the location and size of the stone. (If urine is obtained through the catheter, it shows that the obstruction is incomplete and that the kidney is functioning.) Two c.c. of a 2 per cent. solution of cocain are then slowly injected at the site of impaction. In three or four minutes the catheter is passed beyond the stone and 10 c.c. of sterile oil are injected. If we fail to get the catheter beyond the stone, the oil is injected with considerable force against it in an effort to dislodge it as well as to lubricate and dilate the ureter below the stone. The patient is kept well under the influence of morphin, put to bed and instructed to drink water freely to stimulate the functional activity of the kidneys and in this way assist in expelling the stone. Hexamethylenamin should be given in large quantities.

This technic is repeated every second or third day, its frequency depending on the patient's tolerance of instrumentation. The size of the ureteral catheter should be increased at each treatment to dilate the ureter. We frequently use sizes up to 14 F. A stone too large to be removed in this way is surgical and should be so handled. It is astonishing, however, to see what a large stone can be removed by this plan.

Of our last thirty-one consecutive patients with ureteral calculi, we have operated on but two, and these were patients who came to our clinic just after we had instituted this method. We now believe we should have succeeded in removing these without operation had we persisted in the treatment.

The calculus was demonstrated cystoscopically in each of these cases or recovered by the patient's voiding through gauze. Absence of the obstruction was further demonstrated by the unobstructed passage of the ureteral catheter and permanent relief from the symptoms.

Roentgenoscopy was negative in twelve of these cases. This shows that we cannot depend on roentgenography exclusively to make the diagnosis of ureteral calculi. Of these patients, four received one; two,

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*From the Crowell Urological Clinic.

[1] Crowell, A. J.: Importance of Thorough Examination in Urologic Cases, The Journal A. M. A., Oct. 23, 1915, p. 1434.

two; six, three; four, four; two, five; two, six, and one, eight treatments before the stones were recovered. Most of the cases were referred, were chronic in character, and required a greater number of treatments than the more recently impacted ones.

It has been variously estimated that from 40 to 60 per cent. of ureteral calculi will pass spontaneously if the patient is kept under the influence of morphin and left alone. We believe that practically all recently impacted stones can be removed by our plan if the treatment is properly carried out and persisted in sufficiently long.

Clinical Notes, Suggestions, and New Instruments

A POCKET-CARD FOR THE EASY CALCULATION OF MILK-MIXTURES [*]

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Professor of Pediatrics, University of Pennsylvania School of Medicine

The evident need of a simplification of the procedures required for the prescribing of milk-formulas of known strengths in infant feeding has led to the devising of numerous ready methods. One which, emanating from Germany, has had a decided vogue in parts of this country during the last few years has been denominated the method of the "simple dilution" of whole milk. It probably owes its origin to Heubner, and has much in its favor. It should be at once understood, however, that, contrary to a widespread opinion, it in no sense does away with the calculation of percentages, since it was intended to be employed in conjunction with the estimation of the caloric value of the milk-mixture used; and this, of course, cannot be done unless the percentage composition of the food is known. In fact, it is an impossibility to prepare a milk-formula in a way which offers the best chance of its agreeing with the infant, without a knowledge of the action on the economy of the several different ingredients of the milk, and a recognition of the quantity of fat, sugar and protein which the food contains. The all too frequent attempt encountered in many quarters to use "simple dilutions" without this knowledge is a retrogression to the ignorance under which the physicians of fifty years ago were obliged to labor.

It is further to be observed that the confining of ourselves to simple dilutions of whole milk, while suitable for the feeding of many infants with disturbed digestion, deprives the healthy infants of the amount of fat which they are capable of digesting and ought to have, while on the other hand it maintains an inevitable fixed ratio of fat to protein, which is by no means always desirable. The dilution method is simple and admirable; but we can extend greatly the range of our possible choice of mixtures by using dilutions of certain of the layers of milk: in some cases whole milk; in others milk with a portion of the lower part of the jar removed; in others with a part of the cream layer removed. The process of prescribing the formula, as well as of the preparation of the food, is as easy by one method as by either of the others. These facts are, of course, well understood, but seem prone to be forgotten or ignored by those whose mental vision is concentrated on some single favorite feeding method.

With the object in view of making the preparation of the infant's food as comprehensible and as simple as possible for students, I have for years followed in teaching the procedures now to be described. Recently I have had prepared a printed pocket-card for distribution to the members of my class; and it is a description of the method of using this card which is my object here.

Placed to the left on the front of the card (Fig. 1) is a table of the percentage strengths of fat, sugar and protein of different layers of the quart of milk. The figures given are based on published investigations by a number of writers, as well as on a large number of new analyses made at my request. They may fairly be considered average ones. The table is not entirely accurate, and is not, indeed, intended to be. It is necessary only that it be approximate, since it is not so much initial accuracy which is required as the ability readily to increase or decrease the various percentages as necessity demands. For instance, the actual protein content of whole milk is nearer 3.5 or 3.6 per cent. than it is 4 per cent. The sugar percentage should be 4.5 instead of 4. It long ago impressed me, however, that a slight distortion of the figures would result in the production of certain gradually changing ratios of the fat, on the one hand, to the sugar and protein on the other, which would lighten greatly the labor of any calculating required. In what a simple sequence the ratios run, how easily remembered they are, and what a range of choice they present is shown by an inspection of the table. The error resulting from the intentional distortion referred to is insignificant. For instance, in a mixture containing, according to the table, 2 per cent. of fat and 1 per cent. of protein, the actual protein percentage is nearer 0.9 per cent., and that of sugar 1.12 per cent.—differences which are entirely negligible. It is only when mixtures containing high percentages of protein are employed that the error becomes greater; and then, even with a calculated 3 per cent. protein, it is still less than 0.5 per cent. So, too, the fatter layers of milk, such as those containing 16 or 24 per cent. of fat, possess somewhat less protein than is present in whole milk; but so little of these is usually added to the mixture that the error is entirely trivial. Finally, no allowance is made for the small amount of fat in the lower layers of milk; but this, too, becomes negligible in practice. A short inspection of the table shows how easy it is of application. Thus a milk-formula containing fat, 2 per cent., and protein, 2 per cent., is made by mixing equal parts of whole milk and water, since the ratio of the fat to the protein is 1:1. A formula calling for fat, 3 per cent., and protein, 2 per cent., is constructed by mixing equal parts of water and of the upper 20 ounces of the quart, with a ratio, according to the table, of 1½:1. A low fat formula, such as one containing fat, 1 per cent., and protein, 2 per cent., is made by diluting a portion of the lower 28 ounces of the quart with an equal amount of water. When fat-free milk is desired, the lower 8 ounces can be used, which contain so small a percentage of fat that, especially when diluted, it can be regarded for practical purposes as fat free.

Table Giving Approximate Percentage-Strengths of Different Layers of Milk

		Per cent. Fat	Per cent. Protein and Sugar	Ratio
Upper	2 oz.	24	4	6 to 1
"	4 "	20	4	5 to 1
"	6 "	16	4	4 to 1
"	8 "	12	4	3 to 1
"	10 "	10	4	2 5 to 1
"	16 "	8	4	2 to 1
"	20 "	6	4	1 5 to 1
"	24 "	5	4	1 25 to 1
"	32 " (whole milk)	4	4	1 to 1
Lower	30 "	3	4	.75 to 1
"	28 "	2	4	.50 to 1
"	16 "	1	4	.25 to 1
"	8 "	0 5	4	0 to 1

To Find the Amount of Any Layer of Milk to be Used to Give Percentages Desired

Equation:

$$\frac{\text{Total amount of food} \times \text{Percentage of fat desired}}{\text{Fat-strength of layer of milk used}} = \text{Amount of this milk in the mixture.}$$

(1) Select from the "Layers of Milk" Table the milk which possesses the desired ratio of fat to protein.
(2) Substitute in the equation.
(3) As the sugar-percentage has been reduced equally with that of the protein, add sufficient sugar to raise to the desired percentage.

EXAMPLE: 20-oz mixture desired. Percentages desired = Fat 3, Sugar 6, Protein 1. Use upper 8 oz. (fat 12%, protein 4%, viz: 3 : 1). Then $\frac{20\times3}{12} = 5$ oz. of upper 8 oz., with 15 oz. of water in the 20-oz. mixture. The protein necessarily becomes 1%, and the sugar likewise. The mixture already containing 1% of sugar, add 5% of 20 oz., i. e., 1 oz. of sugar to increase this to the 6% desired.

To Determine the Percentages Present in Any Milk-Mixture Already in Use

$$\frac{\text{Quantity of substance used (milk, cream, or skimmed milk)} \times \text{Its percentage-strength}}{\text{Total Quantity of Food}} = \text{Percentage of element (F., S. or P) in the mixture.}$$

EXAMPLE: The mother has mixed. Upper 8 oz; 6 oz.—Lower 8 oz.; 3 oz.—Milk-sugar 3 level tablespoonfuls.—Water 27 oz. Total quantity = 36 oz. The upper 8 oz. contains 12% fat (see Table). Both top and bottom milk contain 4% protein and sugar Three tablespoonfuls sugar = approximately 1 oz. The fat of the lower 8 oz. may be ignored. Then $\frac{6\times12}{36} = 3$ = Fat percentage from the top-milk. $\frac{3\times0}{36} = 0$ = Fat-percentage from the bottom milk. $\frac{9\times4}{36} = 1$ = Protein and sugar percentages from combined top and bottom milk. The 1 oz. additional sugar divided by 36 = approximately 3% sugar added. There being already 1% sugar derived from the milk, the total sugar = 4%.

Fig. 1.—Front of card.

For some individuals it is more convenient to be able to construct a milk-mixture by means of an equation, and by these the directions on the upper right-hand portion of the card can be used. One great advantage is to be pointed out here, namely, that only one calculation is required for both the fat and the protein, since after we have once selected the percentages of these desired, and chosen the layer of milk which possesses the ratio which these figures represent, as seen in the table, the calculation which gives us the fat necessarily gives us the protein also. Further, that the percentages of protein and sugar obtained by the calculation are the same; that is, if the food has 1 per cent. of protein it has also 1 per cent. of sugar, and the addition of the extra amount of sugar needed is easy.

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[*] Read by title at the meeting of the American Pediatric Society, May, 1918.

At the bedside the mother tells us the composition of the infant's food in use in the gross quantities employed by her of milk, cream, sugar, water and the like; and it is necessary in our attempt to discover the faults present that we should be able easily to determine the strength of the mixture in fat, sugar and protein, respectively. The method detailed on the lower portion of the card enables us to do this very readily and quickly.

There are students, however—and practitioners, too—to whom any calculation of the simplest sort is a burden. For the benefit of these I have prepared the table printed on the reverse side of the card (Fig. 2). This enables one at a glance to prescribe practically any percentages likely to be used in which nothing but milk, water and sugar are employed. In the columns to the right of this table are given the caloric values of the 20 ounce mixture, on which, as a matter of convenience, all the calculations are based, as well as the caloric value of each fluidounce of the formula.

Ready Method for Selecting

Amounts to be Employed in Making Various 20-Oz. Milk-Mixtures, and the Caloric Values Resulting

Percentages desired of			Lower 8 oz.	Low-er 16 oz.	Low-er 28 oz.	Whole Milk	Up-per 24 oz.	Up-per 20 oz.	Up-per 16 oz.	Up-per 10 oz.	Up-per 8 oz.	Water oz.	Sugar oz.	Caloric Value of Mixture	Calories per oz.
Fat	Sugar	Prot'n													
0.5	5	1	..	..	5	..	..	..	..	..	..	15	0.8	175	8.75
0.5	6	2	..	10	..	..	..	..	..	..	..	10	0.8	225	11.25
1	6	1	..	..	..	5	..	..	..	..	..	15	1	225	11.25
1	6	1.5	2.5	..	..	5	..	..	..	..	..	12.5	0.9	237.5	11.88
1	6	2	..	..	10	..	..	..	..	..	..	10	0.8	250	12.5
1.5	6	1	..	..	..	..	..	5	..	..	..	15	1	250	12.5
1.5	6	1.5	..	..	..	7.5	..	..	..	..	..	12.5	0.9	262.5	13.13
2	6	1.5	2.5	..	..	..	..	..	5	..	..	12 5	0.9	287.5	14 38
2	6	2	..	..	..	10	..	..	..	..	..	10	0.8	300	15
2.5	6	1.5	2.5	..	..	..	..	..	..	.5	..	12.5	0.9	312.5	15.63
2.5	6	2	..	..	..	..	10	..	..	..	..	10	0.8	325	16.25
2.5	6	2.5	..	..	..	12.5	..	..	..	..	..	7.5	0.7	337.5	16.88
3	6	1	..	..	..	..	..	..	..	..	5	15	1	325	16.25
3	6	1.5	2.5	..	..	..	..	..	..	..	5	12.5	0.9	337.5	16.88
3	6	2	..	..	..	..	..	10	..	..	..	10	0.8	350	17.5
3	6	3	..	..	..	15	..	..	..	..	..	5	0.4	375	18.75
4	4	4	.			20	.	..	..		.	0	..	400	20

Fig. 2.—Back of card.

In the employment of weak cereal decoctions as diluents, it is customary to ignore the carbohydrate content present. Those who desire to use a cereal water as a diluent and to calculate the amount of carbohydrate derived from this may do so readily by making a decoction of, say, 1 per cent. strength in carbohydrate (about 1 level tablespoonful of barley flour to the pint); adding the percentage of carbohydrate derived from the amount of this used to that coming from the sugar in the milk, and then finally adding sufficient sugar to the mixture to bring the total up to the desired carbohydrate percenage. In ordinary practice with weak cereal diluents this is, however, a refinement not often required.

It should be noted that the commercial pasteurizing of milk interferes greatly with the making of milk-mixtures from the different layers. Indeed, it is practically impossible to produce a food of a fat content sufficiently low for many cases, and the feeding of an infant with fat intolerance is almost an impossibility. My attention was drawn to this fact by my failures with what I had supposed was food of a low fat content, and the failures explained by the discovery that the milk had been commercially pasteurized. With such milk we have no certainty of our ability to make a food containing less than 1.5 per cent. of fat, even if using only the lower 8 ounces of the quart, unless we dilute this with water, and in that event the caloric value is reduced far too greatly. A few examinations which I have made gave approximately: top 8 ounces, 10 per cent. fat; top 16 ounces, 6 per cent., and lower 8 ounces, 1.5 per cent., but these are not to be depended on as average figures. This condition is due to the well known effect of pasteurizing in preventing a satisfactory and uniform rising of the cream. Whenever possible when layer milk is to be employed, it should be procured in the jar unpasteurized, as pure as can be obtained, the mixture prepared, and this then pasteurized in the individual feeding bottles.

From the card has been omitted with full intention any tabulated rules for feeding milk-mixtures varying in strength according to the age. My belief is that such rules, though convenient, are unnecessary; and indeed very frequently harmful by teaching the physician to depend on printed age rules rather than on the personal observation of the individual case. It may produce the same effect in taking away his power to think for himself that comes from following the directions for age which uniformly accompany the proprietary foods on the market. In instructing students I emphasize always the great importance of beginning with a formula much weaker in protein and especially in fat than the actual needs of the infant demand; and then, after tolerance for the artificial food has been established, of increasing the strength of the mixture to the extent to meet the infant's needs, as shown by the gain in weight and the general good condition of health. To go beyond this in quantity or strength of food merely because rules for age say it should be done is a sure way of inviting disaster. The method I have mentioned is, I believe, all that is required by the observing and intelligent man; and the unintelligent cannot be really helped by printed rules in which the age is made the chief guide.

USE OLD INNER TUBES FOR ICE BAGS

Kirk W. Holmes, M.D., Colchester, Conn.

In line of conservation, I have for some time past substituted for the ice bag and coil varied lengths of old or discarded inner auto tubes. Parts of these tubes, cut crosswise in lengths varying from a few inches to 2 or more feet, filled with cracked ice and the ends tied with tape, make an ideal ice pack or coil which can be accommodated to any region of the body and, indeed, is to be preferred to the old ice bag, which quickly gets out of order and is expensive. Any small or even large leaks or "blow-outs" can be closed with adhesive plaster. For the extremities, such a coil is especially valuable in completely encircling the part.

Parts cut lengthwise and sterilized can, in an emergency and in the absence of other rubber tissue, be utilized for drains and impervious coverings, and a long length held in front of the ear may be used in ear douching to protect the clothing in place of an ear funnel.

Possibly this has been suggested before; but aside from the real value, conservation alone will in these "parlous" times excuse its suggestion.

Early Vital Statistics.—While the greatest strides in the advance of vital statistics as a science have been made in recent years, their origin may be traced to centuries before Christ. Indeed, Herodotus tells us of a census of Egypt taken about 3050 B. C. for the purpose of making arrangements for the construction of the pyramids. Elsewhere, this same author refers to a second census, taken about 1400 B. C. in Egypt by Rameses II, for the purpose of reapportioning all the land of Egypt among his subjects. The Bible tells us that Moses counted the tribes of Israel to determine their fighting strength, and that David, about 1018 B. C., took a census for the same purpose. There is a record of a census taken in China about 1200 B. C., when data of the provinces were collected by Uking.—S. W. Wynne, *Michigan Monthly Bulletin of Vital Statistics.*

Military Medicine and Surgery

CASES OF EMPYEMA AT CAMP LEE, VA.

PRELIMINARY REPORT

By THE EMPYEMA COMMISSION
CAMP LEE, PETERSBURG, VA.

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(Concluded from page 373)

CLINICAL OBSERVATIONS ON THE BACTERIOLOGY OF STREPTOCOCCUS EMPYEMA

The pleural exudates from the cases at Camp Lee were examined both in smears and plate cultures prepared with plain agar to which 10 per cent. of defibrinated human blood had been added.

In the fluids obtained by aspiration, hemolytic streptococci alone were found. These were often extremely abundant, a single loop of the exudate yielding from 100,000 to 200,000 colonies in plate cultures.

Stained smears from these exudates showed that the majority of the leukocytes present had undergone necrosis and were in process of disintegration. In many cases there was no evidence of phagocytosis. In other, but fewer, cases, phagocytosis was very marked; as many as forty cocci, sometimes in threads of considerable length, more often appearing as diplococci, were seen in a single phagocyte. But there were always more free organisms than the number incorporated, and the phagocytosis never appeared to be a decisive feature. When it occurred the organisms within the phagocytes sometimes failed to stain deeply and occasionally were reduced to mere shadows, but rather more frequently it was the phagocyte that gave evidence of retrograde changes. In one case, however, the exudate was found to be sterile after the pleural cavity had been several times aspirated, and it is possible that phagocytosis may have been the determining factor in bringing about this result.

The arrangement of the cocci as seen in smears was sometimes in pairs, but short chains of from four to eight biscuit-shaped diplococci were of more frequent occurrence. Longer threads of eighty or more such individuals were rare, but in cases in which these were present, they were often as abundant as the shorter chains. No definite relation could be observed between the severity of the cases and those differences in the streptococci.

The progress of disinfection was followed in the majority of cases coming under the care of the commission, by means of both smears and cultures from the discharges. When practicable, this was regularly done twice weekly in each case.

The results of these studies are of considerable interest, for they demonstrate that the hemolytic streptococcus may persist for a long time in cavities that are merely allowed to drain without effective antiseptic treatment. In one case this organism was continuously present over a period of nearly six months.

They also emphasize the importance of free drainage. Where this is not provided, antiseptic treatment that would otherwise, in the light of observations in freely draining cases, prove effective has failed to accomplish disinfection.

It appears to be a legitimate conclusion from the experience gained through the systematic bacteriologic control of the treatment that when little or no progressive diminution in the numbers of streptococci follows treatment, there must be conditions in the cavity either impeding drainage or preventing contact of the antiseptic solution with all parts requiring disinfection. The value of this information in deciding on modifications in treatment is obvious.

The hemolytic streptococcus is by no means the first organism to disappear under antiseptic treatment in mixed infections of cavities neglected after operation. Putrefactive organisms and the *Bacillus pyocyaneus* disappear much eariler than the streptococcus, as determined by plate cultures. In general, it was observed that the hemolytic streptococcus was present up to the time that the total number of colonies developing from a loopful of secretion fell below 100. When the secretion from the cavity itself became very scanty, it was often impossible to obtain this standard quantity of representative material for culture. If, at that time, a sample of the secretion from the wall of the sinus was taken, this almost invariably contained a large number of viable organisms; but the hemolytic streptococcus could usually no longer be detected even in this situation.

In the routine of dressing adopted, the sinus was bathed with antiseptic only when the dressings were renewed and a culture from this situation obtained only at the longest interval after irrigation. The presence here of large numbers of organisms is, therefore, to be expected. The observations cited show, however, the importance of disinfecting the sinus when the cavity has reached a satisfactory stage of cleansing. For this purpose, a daily treatment with dichloramin-T appears appropriate; but other means might prove equally effective. Until the lung has fully expanded and the wound closed, both cavity and sinus are favorable sites for reinfection.

The curves in Figure 3 illustrate the progress in four recent cases with operation in which disinfection proceeded favorably.

THE NUTRITIVE REQUIREMENTS OF CASES OF STREPTOCOCCUS EMPYEMA

Among the most profitable undertakings of the commission was a study of the nitrogen output of patients in the early stages of empyema associated with the hemolytic streptococcus. It is a common observation that these patients become emaciated and lose strength with great rapidity, and that generous feeding should be a part of their treatment. The amount of nitrogen lost has not, however, been clearly defined. The studies of this subject at Camp Lee, unfortunately, were limited in scope by two circumstances: the necessary apparatus for nitrogen determinations was not included in the laboratory equipment of the hospital, and before this could be obtained the number of acute cases under observation fell off and no fresh cases were received.

Notwithstanding these circumstances, fairly satisfactory determinations of total nitrogen in the urine and exudate were made in three representative cases, and the results are given in the report by Capt. R. D. Bell, who conducted this investigation:

The nutrition of several cases was studied in detail by means of their nitrogen balance. The food consumed was accurately weighed and the fuel value and the nitrogen content calculated from the tables of Atwater and Bryant. The urine was collected in twenty-four-hour periods, and its nitrogen content determined by the method of Kjeldahl. The daily excretion of nitrogen into the pleural cavity was obtained by measuring and analyzing the exudate every time the patient was aspirated. After operation, the exudate could not be collected and the daily pleural nitrogen excretion was assumed to be the same as just before operation. Since the daily amount of nitrogen in the exudate was not over 2.5 gm. per day, this assumption involves no serious error.

TABLE 1.—NITROGEN INTAKE AND OUTPUT IN CASE 1

Period Ending 9 a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per Cent. N	Gm. N	Gm. N Day	N Balance	Creatinin	Creatin
4/28	1,408	9.7	1,000	16.4	...	0.747	...	...	− 8.7		
4/29	1,758	11.9	2,050	31.7	...	.....	...	...	−21.8		
4/30	1,100	9.0	1,925	19.9	540	0.741	4.0	2.0	−12.9		
5/ 1	2,210	14.6	2,250	21.0	...	.....	...	...	− 7.2		
5/ 2	3,732	24.0	2,915	16.9	215	0.711	1.5	0.8	+ 6.4		
5/ 3	3,322	23.2	3,030	13.0	...	.....	...	...	+ 8.5		
5/ 4	2,955	20.2	3,060	16.2	480	0.691	3.3	1.7	+ 2.3		
5/ 5	3,573	25.3	2,740	19.6	...	.....	...	...	+ 4.1		
5/ 6	3,837	22.2	1,500	14.2	360	0.869	3.1	1.6	+ 6.4		
5/ 7	3,108	23.3	1,770	18.1	...	.....	...	...	+ 3.9		
5/ 8	3,288	22.2	2,050	18.8	...	.....	...	...	+ 2.1		
5/ 9	3,780	26.5	.....	....	345	1.158	4.0	1.3			
5/10	3,347	21.7	1,750	19.1	...	.....	...	...	+ 1.3		
5/11	3,662	25.6	1,640	19.3	220	1.201	2.6	1.3	+ 5.0		
5/12	2,793	16.9	1,490	17.0	...	.....	...	...	− 1.4		
5/13	3,510	25.2	1,600	14.8	...	.....	...	...	+ 9.1		
5/14	1,679	11.0	1,590	17.2	...	.....	...	...	− 7.5		
5/15	464	3.4	250	3.2	(Operated on 3 p.m. 5/14. These 2 days not properly separate)				− 7.7		
5/16	2,444	16.3	1,500	29.3	....				+ 7.0		
5/17	3,125	21.5	1,310	13.2	....				+ 7.0		
5/18	2,794	18.0	1,310	10.4	....				+ 6.3		
5/19	2,850	19.7									
5/20	2,807	18.3	1,700	14.6	....				+ 2.4		
5/21	1,839	11.8									
5/22	2,194	13.2	1,710	19.3	....				− 7.4		
5/23	2,503	14.5	1,520	15.8	....				− 2.6	1.651	0.156
5/24	2,577	17.3	2,200	18.4	....				− 2.4	1.857	0.143
5/25	2,518	17.4	1,210	9.7	....				+ 6.4	1.058	0.10[illegible]
5/26	3,734	25.1	1,240	12.1	....				+11.7	1.112	0.0[illegible]9
5/27	3,156	20.4	1,700	15.5	....				+ 3.6	1.653	0.097
5/28	3,880	25.4	1,790	16.4	....				+ 7.7	1.665	0.000
5/29	3,969	23.4	1,800	14.6	....				+ 7.5	1.634	0.000
5/30	3,972	25.3	1,530	16.0	....				+ 8.3		

The nitrogen of the feces is disregarded, and for this reason the nitrogen balances given are slightly too favorable.

In Tables 1, 2 and 3 the nitrogen intake and output of three of these patients are given. Complete twenty-four-hour specimens of urine could not always be obtained, and figures are omitted on such days.

The patients had been kept on a soft diet containing from 1,100 to 1,700 calories, and were losing from 12 to 20 gm. of nitrogen per day. They were placed on the regular hospital diet, supplemented by extra feedings of eggs and milk. No attempt was made to keep them at a constant level of feeding since the increased accuracy of the figures would not have justified the loss of food to the patient.

Figures 6, 7, 8 and 9 represent the relation of the nitrogen balance to the food intake. The broken line represents nitrogen gain or loss in grams, and the unbroken line represents the food intake in calories.

TABLE 2.—NITROGEN INTAKE AND OUTPUT IN CASE 2

Period Ending 9 a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per Cent. N	Gm. N	Gm N Day	N Balance	Creatinin	Creatin
5/17	2,136	12.8	2,980	21.3	(No exudate obtained by aspiration)				− 8.5		
5/18	3,106	18.4	3 350	19.7					− 1.3		
5/19	3,638	21.1	3,070	15.8	....				+ 5.3		
5/20	3,751	22.4	4,680	17.5	....				+ 4.9		
5/21	3,416	19.6	3,700	17.1	....				+ 2.5		
5/22	3,205	15.8	2,880	18.2	....				− 2.4		
5/23	3,660	21.2	2,700	16.1	....				+ 5.1	1.226	0.019
5/24	3,737	18.8	3,540	17.6	(Vomited, amt. est. 400 Cal.)				+ 1.2	1.508	0.014
5/25	2,697	14.6	2,120	15.0					− 0.4	1.285	0.03[illegible]
5/26	3,220	16.3	2,940	15.5	....				+ 0.8	1.427	0.171
5/27	2,512	13.1	1,700	13.6	....				− 0.5	1.349	0.130
5/28	3,121	17.7	3,330	15.1	....				+ 2.6	1.542	0.013
5/29	2,520	12.8	1,820	11.3	....				+ 1.5	1.138	0.0[illegible]
5/30	2,675	15.5	2,220	15.9	....				− 0.5		
5/31	3,037	19.7	2,900	15.3	....				+ 4.4		
6/ 1	2,643	15.2	2,340	16.9	....				− 1.7		
6/ 2	2,042	13.6									
6/ 3	2,666	16.2	1,350	14.3	....				+ 1.9		
6/ 4	3,490	25.4	2,050	14.6	....				+10.8		
6/ 5	3,017	17.9	2,200	14.0	....				+ 3.9		
6/ 6	2,095	12.7	2,650	16.1	(Operated, 50 c.c. pus)				− 3.4		
6/ 7	1,079	6.2	2,270	12.2	....				− 6.0		
6/ 8	1,600	10.5									
6/ 9	2,295	11.0	1,180	9.5	....				+ 1.5		
6/10	3,159	15.8	1,370	10.7	....				+ 5.1		
6/11	3,968	17.1	1,180	8.5	....				+ 8.6		
6/12	2,956	17.2	1,390	11.0	....				+ 6.2		
6/13	3,208	14.8	1,570	11.6	....				+ 3.2		
6/14	3 356	15.8	1,300	9.4	....				+ 6.4		
6/15	3,495	18.8	1,040	9.8	....				+ 9.0		
6/16	3,562	19.3	1,160	10.7	....				+ 8.6		
6/17	3,630	19.1	980	9.5	....				+ 9.5		

Nitrogen equilibrium is placed at 3,000 calories. With the scale used (10 gm. of nitrogen and 1,000 calories to one large square), the curves run quite parallel. Wherever the unbroken line is above the broken line more than 3,000 calories would have been required to keep the patient in equilibrium, and wherever the broken line is above the unbroken line, less than 3,000 calories would have maintained equilibrium. The distance between the lines is a rough measure of the

TABLE 3.—NITROGEN INTAKE AND OUTPUT IN CASE 3

Period Ending 9 a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per Cent. N	Gm. N	Gm. N Day	N Balance	Creatinin	Creatin
4/28	1,408	9.7	3,030	20.3	...	0.827	...	...	−12.9		
4/29	2,397	16.4	4,300	22.1	...	.....	...	...	− 8.0		
4/30	1,745	10.6	4,800	22.2	595	0.790	4.7	2.3	−13.9		
5/ 1	2,061	18.2	3,710	22.7	...	.....	...	...	− 6.8		
5/ 2	3,403	21.7	2,990	21.0	415	1.123	4.7	2.3	− 1.6		
5/ 3	3,097	21.8	3,240	17.7	(Operated 11 a.m.)			...	+ 1.8		
5/ 4	1,260	8.9									
5/ 5	1,842	13.2									
5/ 6	2,263	16.1	870	14.0	....			0.2	+ 0.1		
5/ 7	2,040	13.1									
5/ 8	2,007	10.5	760	10.1	....			1.9	− 1.6		
5/ 9	1,891	10.9	850	11.6	....			3.0	− 2.7		
5/10	3,057	21.1	1,000	10.9	....			7.9	+ 8.2		
5/11	2,760	18.6									
5/12	2,610	16.1	1,180	11.3	....			2.5	+ 2.8		
5/13	3,297	22.5	1,500	7.4	....			12.4	+12.6		
5/14	3,522	25.4									
5/15	3,479	26.1	1,120	11.4	....			12.4	+12.7		
5/16	3,466	20.5	1,390	6.2	....			12.0	+12.3		
5/17	2,932	19.21									
5/18	2,580	16.03									
5/19	3,129	21.6									
5/20	3,103	21.2	2,210	16.8	....			2.1	+ 2.4		
5/21	3,170	22.4	.....	....	....			9.2			
5/22	3,219	19.1	1,470	11.4	....			5.4	+ 5.7		
5/23	3,331	19.4	2,480	13.8	....			3.3	+ 3.6	1.726	0.201
5/24	2,761	17.2	1,500	10.3	....			4.6	+ 4.9	1.278	0.131
5/25	3,760	24.7	1,460	9.2	....			13.3	+13.5	1.070	0.[illegible]
5/26	4,228	26.7	2,770	11.0	....			13.4	+13.7	1.518	0.134
5/27	3,284	22.3	2,060	12.2	....			7.8	+ 8.1	1.642	
5/28	3,640	21.6	1,880	12.1	....			10.2	+10.5	1.512	0.0[illegible]
5/29	3,715	23.0	1,310	12.9	....			7.8	+ 8.1	1.576	0.0[illegible]
5/30	3,470	23.5	1,590	14.4	....			6.8	+ 7.1		

amount above or below 3,000 calories required to maintain equilibrium.

It will be noticed that in the acute stage of the disease with a high temperature, from 3,000 to 3,300 calories are needed to maintain equilibrium. It will also be noted that some patients lost weight although they had a constantly positive nitrogen balance. This is probably due to the fact that the nitrogen of the feces was disregarded. Probably from 3,300 to 3,500 calories would have been needed to maintain body weight.

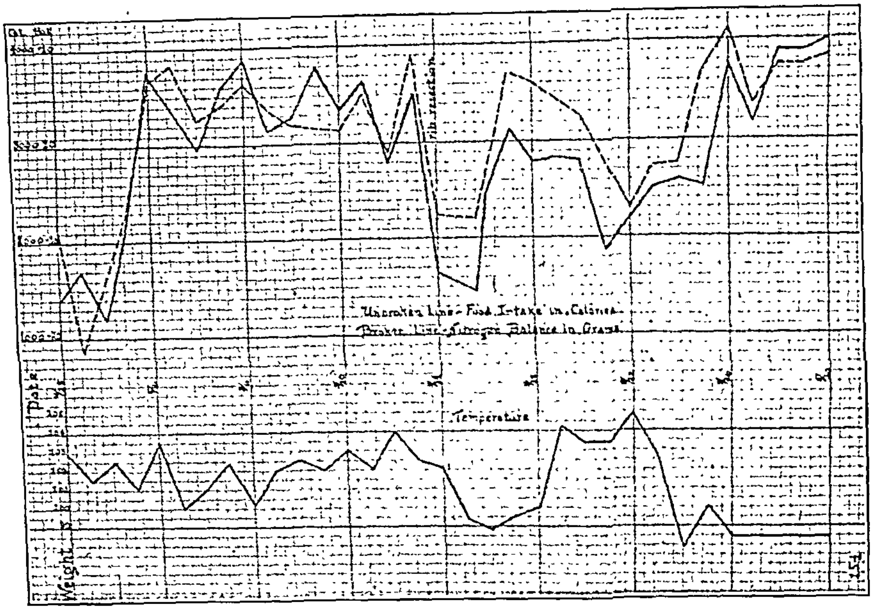

Fig. 6 (Case 1).—Nitrogen conservation following liberal diet.

Since these patients can lose in one day of low feeding as much as can be regained in several days of high feeding, it is important that a close watch should be kept on their food intake. It is recommended that they be placed on a standardized diet containing from 3,300 to 3,500 calories as early as possible and kept on this diet until they have reached their normal weight. The fuel value of any food remaining uneaten should be estimated, and extra feedings of eggs, milk, etc., given to make up the total. While the patient is very ill, lactose drinks may be used and, if necessary, glucose by rectum or intravenously. The patient should be weighed on admission and at least once a week thereafter.

Tables 4, 5, 6 and 7 show a few sample diets and the gains in weight that may be made by such feeding. This diet was estimated by the mess officer of the hospital to cost 87 cents a day.

SUMMARY AND CONCLUSIONS

1. An exudative pleuritis is a relatively frequent complication of the bronchopneumonia associated with hemolytic streptococci.

2. The evidence that this complication is an example of selective invasion of serous membranes by this organism is defective. The involvement of the pleura is probably an extension of the infection from the lungs, often through the medium of a subpleural pulmonary abscess.

3. During the earlier stages of the pleuropneumonic process the pleuritis is probably of far less import than the pulmonary condition and general toxemia.

4. The evacuation of the pleural exudate by operation early in the disease involves greater risks, without compensating benefits, than the removal by aspiration. Much of the relief offered by operation without its attendant dangers can be afforded by aspiration, repeated according to indications. The condition of the patient at this time calls for medical rather than surgical treatment.

5. The results of further immunologic studies may offer a mode of treatment particularly applicable to the early phases of infection with the hemolytic streptococcus. At present there is little or no evidence that available serums are useful.

6. In the early stages of this pleuritic infection the exudate is serofibrinous, the amount of serum being often very large. Later, the exudate becomes progressively more purulent and eventually is a frank, creamy pus.

If treatment by aspiration is continued thereafter, this pus may become sterile, as we have observed in one case. But this should be regarded only as an unusual occurrence, and for a rapid convalescence an operation for its removal and access to the cavity for drainage and antiseptic treatment is called for. Three of our patients, however, have recovered with repeated aspirations, without the necessity of operation. But in none of these had frank pus formed by the time of last aspiration.

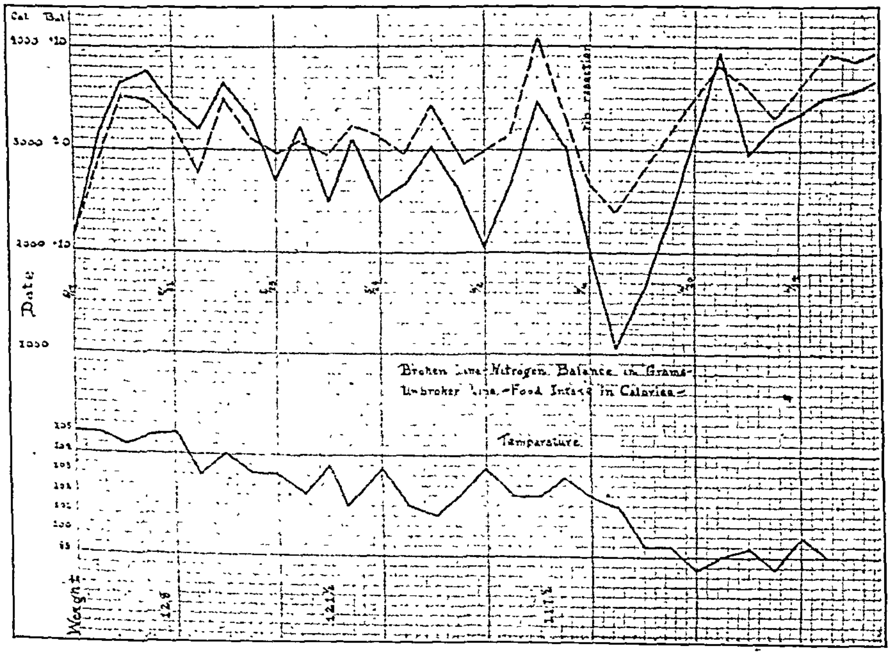

Fig. 7 (Case 2).—Nitrogen conservation following liberal diet.

7. During the period in which the forgoing changes in the pleural fluid are taking place, the general condition of the patient usually improves and operative interference is attended with comparatively little risk and much benefit.

TABLE 4.—SAMPLE DIET 1

Ward 10; May 7-8; 9 a. m.; Calories, 3,288; Nitrogen, 22.18; Proteins, 138.6; Fats, 124.6; Carbohydrates, 380.6

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohydrates
Eggs (3)	.....	19.8	18.0	
Milk	960.0	31.7	32.4	48.0
Sugar	26.0	....	....	26.0
Lamb chop	42.0	9.1	12.5	....
Potato	91.0	2.3	0.1	19.0
Spinach	70.0	1.5	2.9	1.8
Green peas	60.0	4.6	4.9	10.0
Rice pudding	152.0	9.9	7.6	39.2
Toast	163.0	18.7	2.6	99.7
Butter	17.0	....	14.4	....
Ice cream	50.0	2.6	5.0	8.8
Vegetable soup	.....	14.0	....	8.4
Lettuce	10.0	0.1	....	0.3
Macaroni	150.0	4.5	2.2	23.7
Baked apple	.....	0.6	0.6	29.3
Cocoa	270.0	11.0	13.8	17.5
Orange	100.0	0.8	0.2	11.6
Oatmeal	200.0	5.6	1.0	23.0
Banana	102.0	0.8	0.4	14.3

TABLE 5.—SAMPLE DIET 2

Ward 10; May 8-9; 9 a. m.; Calories, 3,780; Nitrogen, 26.52; Proteins, 165.8; Fats, 146.6; Carbohydrates, 423.6

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohydrates
Milk	1,590.0	52.5	63.6	79.5
Eggs (5)	.....	33.0	30.0	....
Sugar	17.0	....	....	17.0
Oranges (3)	400.0	3.2	0.8	46.4
Minced chicken	212.0	36.2	23.0	10.0
Potato	100.0	2.5	0.1	20.9
Toast	242.0	27.8	3.9	148.1
Butter	20.0	....	17.0	....
Tomato	150.0	1.7	0.5	7.0
Cake	48.0	3.0	2.2	27.3
Ice cream	48.0	2.5	4.8	8.5
Cream of wheat	210.0	3.4	0.7	23.8
Prunes	100.0	....	....	35.1

8. The operation should be preceded by a fluoroscopic examination to fix on the most favorable site for the incision.

9. Local anesthesia suffices and is preferable to a general anesthetic.

10. The drainage of the empyemic cavity after operation should be both complete and continuous.

11. Antiseptic treatment of the cavity should be instituted as promptly and thoroughly as conditions permit.

12. In cases not complicated by bronchial communications with the empyemic cavity, neutral solution of chlorinated soda, 0.5 per cent. (Dakin's solution), may be used effectively in cleansing and disinfecting the cavity. In recent cases with free access to all parts of the cavity, dichloramin-T, 5 per cent. dissolved in chlorcosane may be substituted for Dakin's solution; but if there is a thick fibrinous deposit on the pleural surfaces, this is less readily removed and drainage is more difficult to maintain than when Dakin's solution is employed.

13. In applying chlorin antiseptics (Dakin's solution or a chlorcosane solution of dichloramin-T), the following conditions should receive attention:

(*a*) Free drainage.

(*b*) Contact of the antiseptic solution with all parts to be disinfected. This is best secured when Dakin's solution is used with from one to four Carrel tubes variously disposed within the cavity, and an exit tube passing through the thoracic wound to insure drainage.

(*c*) Adequate quantities of the antiseptic solution must be used, with sufficient frequency of application to maintain its action over the period of time necessary for disinfection. In determining these quantities and suitable intervals between instillations, the following guides are suggested, to be modified in individual cases according to the results obtained and other conditions: When treatment is begun, one half of the estimated capacity of the cavity may be introduced at each instillation, but not to exceed 200 c.c. The interval between instillations may, at the beginning, be one hour. As disinfection distinctly progresses, the interval may be increased.

(*d*) At the time of renewing dressings, once daily, an opportunity is given for supplementing the drainage of the cavity and improving the contact of the antiseptic by a cleansing irrigation with Dakin's solution.

14. As disinfection proceeded, the following observations have been made:

(*a*) The amount of secretion diminished.

(*b*) Its purulent character became progressively less marked and ultimately disappeared.

(*c*) With the disappearance of the pus, the discharges became viscid, a glairy, translucent material appearing on the dressings and in the return fluid on irrigation.

(*d*) This character was, in turn, lost and the total amount of secretion from the cavity became very small. On irrigation, the outflowing return was clear. When this was the case, the cavity itself was substantially sterile. But these indications should not be

TABLE 6.—SAMPLE DIET 3

Ward 10; May 9-10; 9 a. m.; Calories, 3,347; Nitrogen, 21.71; Proteins, 135.7; Fats, 121.4; Carbohydrates, 405.4

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohydrates
Milk	810.0	26.7	32.4	40.5
Eggs (3)	.....	19.8	18.0	....
Sugar	25.0	....	....	25.0
Chopped beef	80.0	22.1	6.2	....
Potato	70.0	1.7	0.1	14.6
Purée peas	70.0	9.8	4.0	26.8
Toast	143.0	16.4	2.3	87.5
Butter	20.0	....	17.0	....
Custard	132.0	5.5	8.3	31.3
Apple sauce	134.0	0.3	1.1	49.8
Pudding, bread custard	102.0	6.5	5.0	25.8
Lemon (1)	.....	1.0	0.7	8.5
Cocoa	570.0	20.9	25.8	32.5
Hominy	200.0	4.4	0.4	35.6
Prunes	110.0	0.6	0.1	24.5

TABLE 7.—SAMPLE DIET 4

Ward 10; May 10-11; 9 a.m.; Calories, 3,662; Nitrogen, 25.55; Proteins, 159.7; Fats, 147.5; Carbohydrates, 398.8

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohydrates
Milk	1,050.0	31.6	42.0	52.5
Eggs (6)	.....	39.6	36.0	....
Lemon (1)	.....	1.0	0.7	8.5
Sugar	28.0	....	....	28.0
Orange juice	60.0	0.5	0.1	7.0
Oatmeal	200.0	5.6	1.0	23.0
Toast	255.0	29.3	4.1	156.1
Butter	30.0	....	25.5	....
Potato	82.0	2.0	0.1	17.1
Spinach	80.0	1.7	3.3	2.1
Fish	70.0	14.0	1.7	....
Chocolate pudding	110.0	5.0	7.9	27.8
Ice cream	130.0	6.8	13.1	21.0
Vegetable soup	420.0	10.5	....	18.0
Cocoa	120.0	5.0	6.3	8.0
Custard	90.0	3.8	5.7	23.4
Peach	40.0	0.3	....	4.3

accepted as conclusive evidence that the external wound my be closed without risk of recurrence.

15. The progress of disinfection may be followed by bacteriologic examination of the discharges, best by means of poured plates with defibrinated blood agar. In this way an indication may be obtained of imperfect contact of the antiseptic with the whole of the empyemic cavity, as well as the time of disappearance of the hemolytic streptococcus.

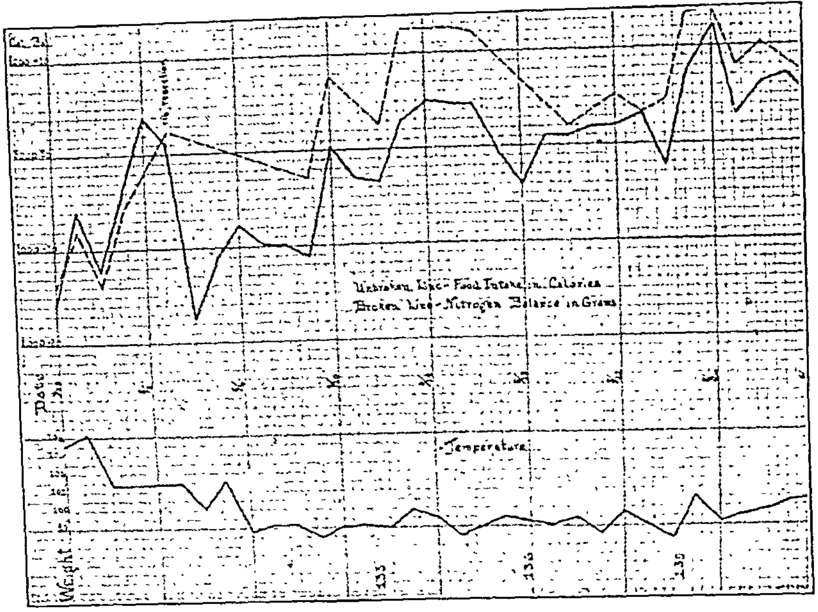

Fig. 8 (Case 3).—Nitrogen conservation.

16. When the empyemic cavity has become cleansed beyond the point characterized by a viscid secretion from the wound, there is usually evidence of increased freedom for expansion of the lung. This is most marked in cases that have not been allowed to run a too protracted course before antiseptic treatment was instituted. When treatment has been greatly delayed, it is probable that a layer of dense fibrous tissue on the surface of the lung tends to restrict its expansion.

17. The danger of such cicatricial fixation of a compressed lung is an indication for prompt operation and cleansing of the empyemic cavity after the acute stages of the disease have passed.

18. With regard to the operative closure of the thoracic wound, few cases of such closure after cleansing and disinfection have been under observation for a length of time sufficient to give complete confidence that no recurrence will take place. The following observations on the total number of cases at Camp Lee may, however, be of some value in this connection:

(*a*) External wounds that are allowed to close spontaneously after prolonged drainage, but without cleansing or disinfection with antiseptics, even when the cavity has apparently become obliterated and only a sinus remains through the thoracic wall, are frequently followed by recurrence, an empyemic cavity, often of some size, not infrequently being revealed on subsequent examination, even after the lapse of several weeks of apparent health.

(*b*) Cavities that have been treated with antiseptic solutions in the manner described until cleansing and disinfection appear satisfactory should be closed, if at all, with great circumspection unless there is a free expansion of the lung. A failure of such expansion may be an indication of some undetected process that will eventually lead to a recurrence of the empyema.

19. Direct observations have been inadequate to define the conditions underlying a recurrence of suppuration after what has proved to be premature closure of the thorax; but there are several possibilities that serve to warrant caution. Among these are:

(*a*) Small lacunae which drain imperfectly into the main cavity and are not reached by antiseptic solutions introduced into the cavity.

(*b*) An irregular expansion of the lung leading to imperfect apposition of the visceral and parietal surfaces throughout their whole extent, leaving pockets that escape treatment. This irregular expansion might be due to (1) local variations in the thickness or pliability of the granulations; (2) residual fibrinous deposits on some parts of the surfaces; (3) irregular contraction of new-formed interstitial tissue within the lung, or (4) subpleural pulminary abscesses, perhaps of very small size, or excavations in the pulmonary surface resulting from such abscesses.

(*c*) A necrosis with infection of portions of a rib.

20. Expansion of the lung can be encouraged and, perhaps, accelerated by various procedures, such as: (1) blowing against resistance; (2) the use of negative pressure and gentle suction devices, and (3) properly controlled exercises which induce not only a more active metabolism but also more active breathing. The influence of such measures can be directly observed, but unless they can be maintained over a period long enough for at least agglutination between the surfaces to take place, it is doubtful whether they materially hasten obliteration of the pleural cavity. Spontaneous expansion of the lung reduces the size of these cavities often with surprising rapidity, once cleansing of the surface has been accomplished.

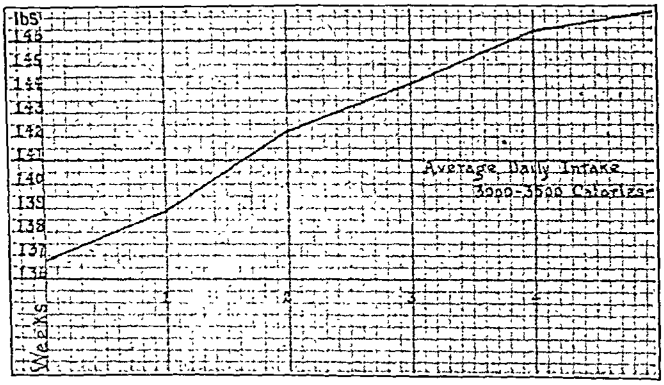

Fig. 9.—Increasing weight following liberal diet during convalescence.

21. Nitrogen excretion is markedly increased during the early acute stages of this streptococcus infection. Emaciation and loss of strength are associated with this augmented protein metabolism. It may, however, be checked by raising the fuel value of the diet to a daily ration of from 3,000 to 3,500 calories. This may be done in practice by adding increased quantities

of milk, eggs, cocoa, etc., to the dietary, or by supplementing this with some readily assimilable carbohydrate as, for example, lactose in a beverage.

22. For the roentgen examination of old cavities with fistulas, we have found thorium nitrate in 10 and 15 per cent. solutions to be of value. Its advantages over pastes of various kinds are its ease of introduction and of withdrawal. A 20 per cent. aqueous solution of potassium iodid appears to give results about equivalent to those secured with the solution of thorium, and is more easily obtained and less expensive. Like thorium nitrate, it is distinctly though mildly irritating.

23. The increased expansion of the lung following the use of Dakin's solution leads to the hope that extensive intrathoracic operations, such as decortication of the lung, may in most cases prove unnecessary. Such procedures should be undertaken only after most prolonged efforts to obtain expansion of the lung have failed, and then only when the surgeon has at his command every facility in the shape of intratracheal anesthesia, assistants and armamentarium.

MEASURES FOR THE PREVENTION AND CONTROL OF RESPIRATORY INFECTIONS IN MILITARY CAMPS*

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The two great surprises of the last year in the Army camps have been, first, the rarity of gastro-intestinal infections, and, secondly, the frequency of respiratory infections, particularly of the streptococcus group.

In former wars, infections of the alimentary tract, such as typhoid and dysentery, were responsible for the great epidemics. In our training camps of today, typhoid and paratyphoid are curiosities and dysentery is an exceptional occurrence. The disappearance of this formidable group of diseases can be attributed in part to the general use of typhoid inoculation and in large measure to the safeguarding of the drinking water from contamination.

During the Spanish-American War the danger arising from polluted water was well known, but careful and comprehensive methods of protection were not carried out. Today an army camp digs its own wells, builds reservoirs, subjects the water to frequent bacteriologic examinations, and in other ways rigidly and scientifically applies the knowledge gained by previous failure. No expense is too lavish, no effort too great, to provide this insurance of soldiers against water-borne infections. And the results abundantly justify the expenditure.

Are we employing equally rational and efficient methods in our efforts to control respiratory infections? Are we not neglecting to apply certain preventive measures that are logically suggested by our knowledge of their etiology and of their modes of dissemination?

MILK AS A CARRIER OF STREPTOCOCCI

Infected milk, cream and ice cream may be playing a rôle in the causation of respiratory infections, especially those due to the streptococcus, somewhat similar to that of contaminated water in the causation of gastro-intestinal diseases. That virulent streptococci flourish in milk is well known. The epidemics of streptococcus sore throat in recent years in Boston, Chicago, Baltimore and many smaller cities, traced as they were to contaminated milk, fully demonstrate that milk must always be reckoned with as a potential cause of any streptococcus outbreak. Even ice cream may preserve these germs in a virulent form for several weeks. Milk is capable also of carrying the germs of scarlet fever, diphtheria and perhaps of other contagious respiratory diseases.

During last winter a sharp epidemic of septic sore throat at Camp Grant was attributed, with a high degree of probability, to the milk. Following these cases came a wave of scarlet fever. Both of these diseases decreased when the milk was boiled.

The prevalence of streptococcus infection, both primary and secondary, has been remarkable in all the camps. It is not far from the truth to say that the streptococcus has been responsible for more deaths than all other organisms combined. Sore throat, bronchitis, sinusitis, pleurisy, bronchopneumonia and pericarditis, have been the more common manifestations. Of course, the contagion spreads from one person to another, but it is quite possible that a fresh stream of streptococci is constantly flowing into the camp and being disseminated by milk, cream and ice cream. A comprehensive and exhaustive study of this whole subject by competent investigators is imperatively needed at the present time.

In the meantime, however, in view of the constant danger of contamination, all milk and cream products should be pasteurized under direct supervision of the camp authorities. The most satisfactory and reliable means of accomplishing this end is to build and equip a pasteurizing plant in the camp proper, and have the process carried out and supervised by Army men. Such a plant could also manufacture all the ice cream used at messes and canteens.

Thorough pasteurization of milk in its various forms might reasonably be expected greatly to cut down the incidence of streptococcus infections and possibly that of scarlet fever and diphtheria.

ISOLATION OF SOLDIERS BY MEANS OF THE FACE MASK

As previously stated, most of the diseases encountered in the training camps are infections of the respiratory tract such as meningitis, diphtheria, scarlet fever, mumps, measles, German measles, pneumonia, whooping cough, streptococcus tonsillitis, bronchitis and bronchopneumonia. All of these communicable diseases are transmitted from one individual to another by means of the secretions of the nose and throat. Talking, coughing and sneezing force a fine spray of mucus and bacteria into the air which may directly infect another person and which contaminates clothes, bedding and furniture.

Crowding in barracks, at the mess table, and in recreation rooms facilitates the transmission of these infections and explains their rapid spread in Army camps. Crowding in the ambulance, in the receiving office and in the wards is even more favorable to germ transmision, because a large proportion of these soldiers are already affected with some contagion, and they simultaneously expose themselves and their comrades to a secondary infection.

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

The remedy for crowding is group separation and, as far as possible, individual isolation. The segregation of newly arrived troops for three weeks in detention camps is one of the most vital measures in checking contagion.

The expedients of increasing the space between beds in barracks, of placing the head of one soldier opposite the feet of his neighbor, of stretching tent flaps between beds, and of suspending a curtain down the center of the mess table, are all of proved value. But the most efficient method for securing isolation of the individual is the use of a face mask, made with three or four layers of gauze in the shape of a rectangle measuring 5 by 7 inches.[1] The mask has long been employed by surgeons as a filter for the expired air in the operating room. It has been used successfully at the Durand Hospital by Weaver[2] for the protection of physicians and nurses engaged in the care of patients with contagious disease.

So far as we can learn, however, the use of the face mask for patients had never been practiced. In a hospital where each patient is confined to a separate room, there is no reason for masking the patients. But in hospital wards where, even with cubicles, patients must mingle and expose one another to respiratory infections, the face masks on theoretical grounds promised protection.

The experiment was started at Camp Grant[3] in the latter part of January, 1918, and was so successful that it was instituted as a routine measure in most of the medical wards early in February.

The system is carried out (1) at the regimental infirmary, (2) in the ambulance, (3) in the receiving office, and (4) in the wards. The directions observed are as follows:

1. At the regimental infirmary every patient with contagious disease is masked immediately after the diagnosis is made.

2. Every patient on entering the ambulance, whether infected or clean, is masked. Each ambulance carries a box of clean masks, which is replenished at the receiving ward.

3. At the receiving office the ambulance patients continue to wear their masks. Other patients who walk to the hospital for minor ailments are masked at the door by a noncommissioned officer. All retain the mask in place during the examination and on the trip to the ward, and remove it only when they are in the ward cubicles. Since the initiation of this practice, the occurrence of cross-infection from contact in ambulance and receiving ward, previously quite frequent, has been rarely observed.

4. In all wards for contagious and respiratory diseases (this includes nearly all the medical wards) the mask is worn by patients as well as by physicians, nurses, ward men and visitors. As long as the patient remains within the shelter of the cubicle he need not wear the mask, but he puts it on whenever he leaves the cubicle for any reason. Patients must either have their meals served in bed or while masked procure their tray of food and carry it to the cubicle. All eating utensils are sterilized after each meal.

Smoking is absolutely prohibited, as it necessitates the removal of the mask.

In view of the danger of transmission from the wash bowls, the plugs are removed, so that only running water is available for washing the face and teeth. Only one person at a time is allowed in the wash room, as the mask is necessarily removed therein. On the other hand, there is no objection to several persons occupying the latrine at the same time. The latrine is kept separated from the wash room in the double wards by locking the communicating door, in the single wards by hanging up sheets between closets and wash basins. To enforce the wash room regulations, a guard, who is usually a convalescent patient, sits outside the door.

Much depends on stimulating a lively interest in the scheme on the part of nurses and ward men. The ward surgeon very easily wins the cooperation of the patients themselves by frequent short talks, explaining the purpose of the masks and pointing out their similarity to the gas masks.

From February 1 to June 1, 1918, the cubicle and mask were in continuous operation. Whenever a case of scarlet fever broke out the ward was placed in quarantine for one week; when measles broke out, the ward was quarantined for two weeks.

In twenty wards exposed to scarlet fever as a secondary infection, only one subsequent case of scarlet fever developed during the week of quarantine.

In eight wards exposed to measles as a secondary infection, not a single case of measles developed during the two weeks of quarantine.

The system may be said to have been efficient in 95 per cent. of the exposures to scarlet fever and in 100 per cent. of the exposures to measles.

If this experience can be taken as a criterion, we soon shall be justified in ignoring the quarantine of the ward in these cross-infections, provided the system of masking and the cubicle is in good working order at the time of their appearance.

ABSTRACT OF DISCUSSION

Dr. James S. McLester, Birmingham, Ala.: We have used the method suggested by Dr. Capps at Camp Sheridan with satisfactory results. At one time in the measles ward almost every patient had coryza or bronchitis, and bronchopneumonia was developing rapidly. We removed every case of bronchopneumonia as soon as recognized, but that did not stop the spread. Finally, we put all the beds in that ward in cubicles and washed all the patients. Very soon the bronchopneumonia ceased to appear. That was to me a graphic demonstration of the value of the mask and of the cubicle system of isolation. Later on we had a similar experience in an epidemic of so-called grip. This disease spread rapidly through the hospital. Finally we made universal use of the mask and the cubicle and were thus able effectually to control the epidemic.

Dr. John A. Lichty, Pittsburgh: In a large civilian hospital during the past winter our experience was much like that of Major Miller and Major Stone. We had two epidemics of pneumonia in the Mercy Hospital at Pittsburgh. The first epidemic came early in the winter and seems to have occurred mostly in colored men who had come from the South in the summer and who had never lived in the North. They came poorly clad and were improperly housed. They did not use the large wages they received to feed themselves properly. These men had a typical lobar pneumonia. They came into the hospital late, usually on the seventh day; and the mortality was very high. We did not have time to group them all or to treat them with the serum after they were grouped because they died so soon after entering the hospital. The other group came in the latter part of the winter when the cold weather began to break up. This was an entirely different class, and it corresponded with the class of pneumonia which seems to have occurred in the camps where there were abscesses of the lungs, empyema, etc., because they were very irregular, they were hard to diagnose, and, no matter whether they came in early or late, the cases were almost invariably fatal.

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[1] Commercial gauze varies greatly in weight and closeness of weave, so that it is important to fix a standard texture and the number of layers required to afford protection. Major Haller, chief of the laboratory at this hospital, is completing bacteriologic experiments for this determination and will publish his results in an early number of The Journal.

[2] Weaver, G. H.: The Value of the Face Mask and Other Measures in Prevention of Diphtheria, Meningitis, Pneumonia, etc., The Journal A. M. A., Jan. 12, 1918, p. 76.

[3] Capps, J. A.: A New Adaptation of the Face Mask in Control of Contagious Disease, The Journal A. M. A., March 30, 1918, p. 910.

There should be propaganda work with reference to pneumonia just as there is with cancer. The laity should know what the early symptoms of pneumonia are, or the laity should be as keen about pneumonia as they are about appendicitis. Then, I believe, we can do much more with serum treatment than we have done heretofore.

Dr. H. P. Greeley, Madison, Wis.: This symposium has brought out the fact that pneumonia is, first and foremost, an upper respiratory tract disease. The question which I want to ask is, In what proportion of cases in the epidemics at the cantonments was the upper respiratory tract the seat of an acute inflammation? Dr. Capps has shown conclusively the value of masking in the prevention of pneumonia. Is local treatment of value in the preliminary stage of upper respiratory tract inflammation, the stage of invasion? Can any antiseptic local treatment be employed as a prophylactic?

Dr. Albert R. Trapp, Springfield, Ill.: I have often observed infected teeth and tonsils antecedent to pneumonia. These chronic infections increase the susceptibility and decrease the resistance to pneumonia. In treatment it would seem wise to combat these infections. Another thing I should like to have seen taken up is the viscosity of the blood. Wright has spoken of the citrates as diminishing the viscosity of the blood. It would seem that this could be tried out.

Dr. Charles N. Lovewell, Fort Snelling, Minn.: I have had somewhat the same experience at Snelling as you did at the other camps. We are located near the University of Minnesota, and one of the things I have been grateful for since coming into the service is the fact that we were so assigned. The men there have been exceedingly kind to us in confirming some of our work, and because of the help they have given us we have been able to do better work than we otherwise could have done. In our work on pneumonia we have been able to classify the cases according to types. We had a comfortable, satisfactory time with our pneumonias in October, November and December. About the 1st of February troops from Kelly Field were sent to us, and then our troubles began, for with them came a type of pulmonary disease I had seldom seen before. Major Miller spoke about the great variance in the physical findings. It filled me with a great deal of satisfaction and, I declare, I felt better when I realized that others, and men of skill and ability, should be annoyed by the difficulties presented in arriving at correct diagnoses from their physical signs. We found every variety of physical sign disproved at necropsy. We found apparent empyema disproved by the surgeon going in and finding no empyema there. The pleuritis due to streptococci was associated with an exudate of gelatinous material which we have examined at necropsy and found by squeezing to be full of pus, although it would appear to be free from fluid. We have at the present time in our hospital fifteen cases of streptococcic pneumonia followed by empyema. Some of them, over half of them, have been in the hospital since March 1. Among the patients that are not there now, some having been discharged and some having gone to Fort Bayard, we have noted quite a large percentage of cases developing tuberculosis. I have not heard that mentioned here this morning. There is another thing that impressed me very much, and that was the apparently almost simultaneous occurrence of suppurative peritonitis with empyema, simulating appendicitis and pneumonia at the same time. We have made the mistake of operating in one of these cases, in which we found that condition. We have had some patients die of severe toxemia within an hour of their admission to hospital in whose chests we were unable to satisfy ourselves that there was any amount of pus, and in the abdomen we have found up to 200 to 300 c.c. of fluid, a most distressing condition for anybody who tries to make a diagnosis.

We used the commercial serum at first, although we found later that the serum had little or no agglutinating power against Type I. We gave our patients standardized tincture of digitalis, and in the last series of thirty cases we used the autolyzed pneumococcic antigen prepared by Rosenow, and I believe that, while the epidemic has lost its virulence, the antigen has markedly affected not only our mortality but the incidence of the crisis in the true cases of pneumococcic infections.

Dr. Edward F. Wells, Chicago: The paper is of great and timely interest. The principle of protecting other persons from contact with infective organisms thrown into the air by pneumonia patients is clearly beyond question; the details may be adapted to meet the varied requirements, and have been mildly and incidentally mentioned at intervals during the past three or more decades. Recognizing the fact that the pneumococcus, once it obtains lodgment in the nose and throat, remains a permanent potential danger to its host, and that it may be conveyed to others by air which has been contaminated by coughing and sneezing, I have long, and frequently, advocated the placing of signs in public places to the effect that "In coughing or sneezing hold your handkerchief before your mouth and nose." I have no doubts as to the widespread beneficial prophylactic results which would follow the general adoption of this measure, and desire again to recommend its employment.

Dr. Edward E. G. Franing, Camp Dodge, Iowa: I was at Camp Dodge from the beginning and saw this whole epidemic. We were going along smoothly until all at once we were thrown into a sort of a convulsion by an epidemic striking us. There was nothing important about pneumonia before this epidemic came on. It seemed that we had said everything about pneumonia, but we found that there was a great deal to say. We are classifying pneumonias. We have divided them into two classes. One is the old-fasioned pneumococcus pneumonia and the other is the streptococcus pneumonia, which causes an interstitial type of disease. I am on the surgical side at Camp Dodge. We had some infections in our hernia work and in some cases of chronic appendicitis. We did everything we could to stop those infections, but we did not succeed. After a short time we were able to put the dirty work in one pavilion and the clean work in another place, and after that we had no more infections, showing that the infection was general throughout the hospital.

We had cultures made of the throats of the twenty surgeons on the service and found that about 18 per cent. had streptococci. The *Streptococcus hemolyticus* was present in probably 15 per cent., and there was one man who had the short-chained streptococcus—the nonhemolytic streptococcus. The point I want to make is that some of you will have those same germs in your own throats, and when an epidemic comes the percentage of these streptococci increases. The streptococcus was found in 60 or 70 per cent. of these sore throats. Any infectious disease will increase the streptococcus flora in the throat, so that it is no wonder that these streptococcus infections increase in the measles cases.

We could do necropsies. We found that those sore throats, the ulcerative throats, were accompanied by very red congested tracheas and bronchial tubes and interstitial pneumonias. A very simple streptococcus pneumonia resolves itself very easily, but at the top of the wave it is more severe, the infection is more virulent, more of the lung is involved.

The worst complication we had was empyema, and it was my misfortune to operate on nearly half the cases. Practically all those empyemas got well until the epidemic struck us, and then the death rate of the empyemas went up, in spite of any operative procedure. At the end of the wave, or when the wave was breaking, the death rate dropped right down, showing that any operation we did in those virulent cases was of no avail. It made no difference what operation you did, when the pneumonia was on the decrease the wave of death rate went down. So that we have to be very careful in deciding on the kind of treatment.

Dr. Granville N. Ryan, Des Moines: It is our experience that you will get a favorable result in using glucose intravenously in the presence of an approaching coma or a dry tongue that is evidence of a dehydrated condition of the general system. It has been our experience that even a 10 per cent. solution of glucose has given very good results. We have added sodium bicarbonate in a 5 per cent. solution not only in pneumonia but in any dehydrated condition of the system or acidosis. I have not used glucose in 25 per cent. solution. In a delirious patient, instead of using opiates, try glucose, either alone or with sodium bicarbonate. You can make many of these patients more comfortable and, besides, these injections have a nutritive value.

ACUTE MASTOIDITIS AS A COMPLICATION OF INFECTIOUS DISEASES

BASED ON A STUDY OF ONE HUNDRED AND TWENTY-THREE CASES IN THE BASE HOSPITAL, CAMP SHELBY, MISS.*

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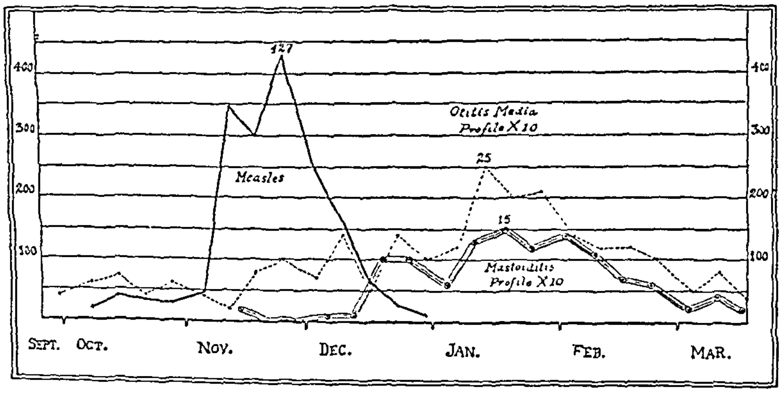
During the past winter the southern Army camps seem to have been invaded by a widespread streptococcus infection, expressing itself somewhat differently here and there; but in its most virulent form, and with highest mortality, in the shape of an involvement of the lung or pleura or both by the *Streptococcus hemolyticus*.



Curve designed to show measles, otitis media and mastoid admissions to the hospital by weeks. The otitis media purulenta and mastoid scales bear a ratio to the measles scale of 10: 1; i. e., to read, substitute the numbers 10, 20, etc., for 100, 200, etc. The numbers at the acme of each curve indicate the largest total admissions for one week.

Camp Shelby was no exception to the general rule, but for unexplained reasons, which the epidemiologist must elaborate for us, the infection was not of the severest type, as there occurred only about 300 cases of pneumonia and thirty-five cases of empyema. However, in studying the streptococcus cases as a whole, a striking variation from the general rule is at once apparent, in that, among the empyemas, the hemolytic streptococcus is not the prevailing agent of infection. While there are a few due to this type of streptococcus, by far the larger number, as shown in the study by Captains Todd, Moore and Zingher, are due to a streptococcus of the *S. viridans* group. There have been a considerable number of patients having streptococcus infections of organs other than the lung and pleura, and when one glances over this division another exception is evident, in that there is a large number who suffered invasion of the middle ear and mastoid. It is this group that constituted our peculiar problem. By itself, this cannot be considered as an entity but as a curious phase of the broad streptococcus problem; and as one phase only of that larger question do I propose to deal with it.

In all, 123 soldiers developed acute mastoiditis of one or both sides. Invariably there was a preceding middle ear involvement, though in several cases the invasion of middle ear and mastoid had the appearance of being synchronous, so rapidly did the infection mature.

It was a common occurrence that a patient complained in the night of earache, and the next morning was found to have a reddened, bulging drum, which would be opened at once. Mastoid tenderness was an accompaniment of the middle ear symptoms, and the second morning, the tenderness persisting, and the temperature remaining high, even with free drainage, the roentgenogram would reveal a cloudy mastoid, leukocytes would be high, and at operation within forty-eight or seventy-two hours of the onset of the first symptoms, an extensive involvement of the mastoid with necrosis and thick pus would be found. Others of our cases were slower in onset; there were some in which we felt that we had not attacked the middle ear early or vigorously enough; but so many developed rapidly right under our eyes, despite the promptest care in the shape of paracentesis and roentgen examination of the mastoids, that we could not escape the conclusion that we were dealing with a highly virulent organism which had a definite predilection for these tissues.

Turning now to the relation of this "epidemic" of mastoiditis to preexisting diseases in the camp, our attention is first attracted to the outbreak of measles. The graphic chart shows that the mastoid cases occurred mainly in the period from December 15 to February 1. The curve of the measles epidemic begins in October, reaches its height in late November, and declines abruptly in January. The curve of the otitis media and mastoid cases follows this rather graphically. The otitis media curve here shown represents 240-odd cases. This number must not be misunderstood to represent the total number of otitis media purulenta cases in camp. It gives merely those cases treated in the wards of the base hospital and does not include either the cases treated by the ear clinic or at the regimental infirmaries, which never entered the hospital, and of which we have there no record. Consequently it does not represent, nor is it intended to represent, anywhere near the total number of otitis media cases from which the mastoid series developed. It is merely put in as exhibiting in a general, but fairly accurate way, the determination of the curve of the entire group of middle ear infections. It must be remembered that December and January were the months of the greatest incidence of all the acute respiratory affections, and these too, as we shall see, played a most important part in the development of mastoiditis.

Table 1 shows the relation of the mastoid cases to the various diseases that preceded them immediately enough to be given credit as etiologic factors. Forty-four followed measles, either directly or within a month after discharge from the hospital, returning with a history of continued cough or cold since the measles attack; eleven followed bronchitis, eleven followed tonsillitis, six complicated mumps directly, seven acute colds, and other patients had pneumonia, scarlet fever, erysipelas, etc., immediately preceding the mastoid infection. In forty-three, owing perhaps to incompleteness of the hospital records, we have nothing but a history of otitis media as the antecedent disease. Nevertheless, it is a fair assumption, I think, that a large number of this group were due to acute colds; but as our histories give no other cause than otitis media purulenta, I have put them in a class by themselves.

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* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

We see, then, that measles played a very important part in the mastoid "epidemic," being responsible for 36 per cent. of the cases. As I have just pointed out, probably a greater number were due to respiratory affections than shows here, though we have a definite history of it in only 28 per cent. of cases, regarding the mumps and scarlet fever cases as of the respiratory type. Mumps falls into this category, I believe, because a very considerable number of these patients had a complicating bronchitis, often quite severe, and in several going on to the development of pneumonia.

There were a few cases that developed so rapidly as to make it seem almost that the infection of the mastoid cells was primary, and raised in our minds the question of hematogenous infection. It is hard to believe that this is so, for the pathway from the nasopharynx through middle ear to mastoid is too obvious. I will cite one case which illustrates what I mean, and though an extreme instance, it pictures quite graphically the manner in which many of our cases behaved:

TABLE 1.—ANTECEDENT DISEASES IN ONE HUNDRED AND TWENTY-THREE CASES OF ACUTE MASTOIDITIS

Measles	44	Mumps	6
Respiratory diseases	28	Scarlet fever	1
Otitis media	43	Erysipelas	1
		Total	123

W. S. H. (Reg. No. 5798), aged 25, was admitted, Jan. 22, 1918, to the base hospital with the diagnosis of measles. The disease ran an ordinary course, only moderately severe, and there were only mild bronchitis symptoms. Convalescence was satisfactory

February 2, the patient was out of bed for the first time, and seemed very well.

February 3, he was awakened during the night with pain in the left ear, which kept him awake the remainder of the night.

At 10 a. m. the patient seemed very ill. He was delirious; the temperature was 102; the left ear drum was bulging and tense. Paracentesis was done under light anesthesia, which was necessary on account of the delirium.

At 2:30 p. m., tenderness over the mastoid was still marked. Delirium continued; there was some rigidity of the neck and a moderate Kernig's sign on both sides.

At 3:30 p. m., roentgenoscopy revealed the left mastoid cloudy.

At 4:30 p. m., operation disclosed extensive involvement, with necrosis and thick pus throughout the mastoid cells. The bony wall of the lateral sinus was found already broken down and the sinus bathed in pus. A culture showed the *Streptococcus viridans*.

February 6, the patient died. On removal of the skull cap at necropsy there was seen a thick, purulent mass under the pachymeninges on the left side of the brain from the midfrontal back to the posterior lobe, from the midsulcus down to the middle fossa, the point of greatest quantity being just above the left mastoid region.

Not only is this case characteristic of the rapidity of onset of a good many of these infections, but it illustrates the promptness with which the surgical staff cooperated with us and got at the cases.

Table 2 shows some of the most interesting features of our problem. First, it gives the bacterial incidence of the epidemic. Of the 123 acute mastoids, eighty-one, or 66 per cent., returned positive cultures. Cultures of the middle ear have been disregarded because of the frequency of contamination, and these eighty-one represent cultures taken from the mastoid pus at the time of operation, and give an accurate picture of the causative organism. Considering, then, the eighty-one cases returning positive cultures in a group by themselves, and disregarding for the moment the forty-two cases in which either no culture was made or the culture was negative, we see that the streptococcus is concerned with fifty-nine, or 73 per cent., of the eighty-one. The *Staphylococcus aureus* in pure culture is responsible for thirteen cases, or 16 per cent., and a miscellaneous group of organisms, usually in combination, for the remaining 11 per cent.

TABLE 2.—RELATION OF ANTECEDENT DISEASES AND THE BACTERIAL INCIDENCE AMONG ONE HUNDRED AND TWENTY-THREE CASES OF ACUTE MASTOIDITIS

Organism	Cases	Deaths		Antecedent Diseases		
			Following		Cases	Deaths
Streptococcus viridans	29	7	Measles 5 Measles and mumps 1 Otitis media purulenta 1	Measles Respiratory diseases Otitis media purulenta Mumps Scarlet fever Erysipelas	27 12 16 2 1 1 59	9 0 1 2 0 0 12
Streptococcus hemolyticus	5	3	Measles 1 Mumps 2			
Streptococcus and staphylococcus	17	1	Measles 1			
Streptococcus and miscellaneous organisms	8	1	Measles 1 12			
Staphylococcus aureus	13	0		Measles Respiratory diseases Otitis media purulenta Mumps	3 3 7 0 13	
Miscellaneous organisms	9	0		Measles Respiratory diseases Otitis media purulenta Mumps	2 3 3 1 9	
Culture negative or not taken	42	0		Measles Respiratory diseases Otitis media purulenta Mumps	12 10 17 3 42	
Total	123	12			123	

Thirty-four of the fifty-nine streptococcus cases were in pure culture. Five were the hemolytic streptococcus, and twenty-nine were proved or probably *S. viridans*. I say probably, because in the early days of the outbreak, with the hospital overwhelmed by the work entailed in its sudden expansion to meet the measles situation, the laboratory often reported the *S. viridans* cases simply as streptococcus; but they assure me that all these were *S. viridans* cultures, and the analogy with the empyemas, which were worked out later, and have proved to have a large preponderance of *S. viridans* over hemolytic infections, is very striking. I realize that this fact vitiates our statistical study to some extent, and many may be unwilling to accept it as an actual picture of our *S. viridans* infections. There is little doubt in my mind as to the morphology of this group; but in fairness the facts must be stated, that one may be able to accept or reject my conclusions according to one's own judgment.

Captain Zingher, in his report on the bacteriology of the empyema cases occurring at Camp Shelby, thus describes this organism:

> The *Streptococcus viridans* isolated from a large number of the cases of empyema occurring in this camp produces on blood plates rather large, moist colonies, resembling somewhat those of the *Streptococcus mucosus*. This appearance of the colonies is most marked at the end of twenty-four hours. At the end of forty-eight hours, these colonies become flat and dry. The size of these colonies is in striking contrast to the small pin point colonies usually produced by the ordinary *Streptococcus viridans*. The blood medium is turned slightly green, especially where the colonies are numerous. There is no evidence of hemolysis. In broth cultures the organism produces a sediment, which consists of very long convoluted chains of cocci. The supernatant fluid is clear. The organism has no capsule and is not soluble in bile. It does not ferment inulin. The morphology of the organism is interesting. When grown on a solid medium the cocci are generally uniform in appearance; the organism shows, however, a tendency to polymorphism, many of the cocci appearing unusually large, oval or rod shaped.

Of the other streptococcus cases, seventeen were due to a mixed infection with *Staphylococcus aureus*, and eight to a mixture with miscellaneous organisms—the pneumococcus, influenza bacillus, etc.

The deaths from mastoid infection numbered twelve, and all occurred in the streptococcus group; seven in the *S. viridans*, three in the hemolytic, and one each in the staphylococcus and miscellaneous subgroups. These patients all died of a complicating streptococcus meningitis, proved by culture from the spinal fluids and at necropsy. Again, eight of the twelve who died had an antecedent measles infection; one had measles only a month prior to readmission for mumps, and developed his acute mastoiditis within a few days after entering the hospital. Of the others, two had mumps, and the twelfth entered with merely a history of otitis media purulenta. This constitutes a striking argument for the severity of the measles-streptococcus complications.

In addition to these data, this table is arranged to show the relation of the antecedent disease to the various bacterial groups. Thus we see among the streptococcus cases that twenty-seven complicated measles, twelve respiratory diseases, sixteen belong to the otitis media purulenta group, and if these are classed with the respiratory infections, it gives this section an equal preponderance with the measles numerically. But in the matter of virulence the latter class is emphatically the leader.

Among the less virulent bacterial groups the balance is overwhelmingly in favor of the otitis media purulenta-respiratory cases: the staphylococcus appearing in three measles patients to ten of the latter cases, while the miscellaneous organisms show two measles to six otitis media purulenta-respiratory cases.

The warning here seems quite evident that when measles is abroad, streptococcus complications are to be expected and conversely, that all complications of measles are likely to be more severe than similar complications of other infections. Measles cannot be classified as a respiratory disease. Rather it is a primary entity by itself, with secondary respiratory manifestations, and must be clearly separated from the large group of primary respiratory infections.

Another fact of interest is shown in Table 2. In other camps the *Streptococcus hemolyticus* has been the dominant organism the past winter, and has largely been a factor in complicating measles. But in our five cases of this type, only one patient had an antecedent measles, while one case followed otitis media purulenta, two followed mumps, and the fifth developed at the height of an erysipelas. In other words, out of our twenty-seven measles-streptococcus cases, only one showed a hemolyzing streptococcus. The proportion of deaths in this group was very high, three out of five.

TABLE 3.—DISTRIBUTION OF STREPTOCOCCUS CASES THROUGHOUT CAMP

Organization	Cases of Mastoiditis	Cases of Empyema	Total
149th Inf.	20	3	23
150th Inf.	21	5	26
151st Inf.	9	5	14
152d Inf.	15	5	20
137th F. A.	15	1	16
138th F. A.	1	0	1
139th F. A.	9	4	13
137th M. G. Bn.	6	1	7
139th M. G. Bn.	3	0	3
76th F. A.	1	1	2
A. R. D.	1	1	2
B. H., M. D.	1	1	2
113th Eng.	5	2	7
113th F. S. Bn.	2	0	2
113th Sup. Tr.	3	0	3
113th Amm. Tr.	4	0	4
129th Ord. Dep.	1	0	1
38th Div. M. P.	1	0	1
38th Div. Hq. Co.	1	0	1

Table 3 shows the distribution of the cases throughout the various regiments in camp to have been fairly general, corresponding rather uniformly in this regard to the pleural-streptococcus infections. No organization seemed to suffer disproportionately.

CONCLUSIONS

Imperfect as this study is in many respects, the following conclusions seem to me justified from the facts and analogies presented:

1. The Army camp in question appears to have suffered this past winter an "epidemic" of acute mastoiditis.

2. This exhibition of mastoid infections is only one expression of the general streptococcus incidence in the camp.

3. The latter streptococcus invasion, in turn, is but a sideshow in the very widespread wave of streptococcus disease throughout southern Army camps.

4. It is peculiar in two points: (*a*) The dominant organism is the *Streptococcus viridans*, and not a hemolyzing streptococcus, as appeared elsewhere; and (*b*) its chief expression is in the form of an unusually severe involvement of middle ear and mastoid tissues.

5. Measles played a prominent part in giving the streptococcus a start in its work, and stands by itself as an etiologic factor in the development of the severer types of mastoiditis.

ABSTRACT OF DISCUSSION

Dr. Robert H. Fowler, New York: If it were possible for you to enter the "Mastoid Ward" at Camp Shelby as it appeared when I first saw it last December, you might well be surprised. Every patient had his head swathed in the gauze turban which connotes mastoid operation. Several patients had attained special distinction; they had had a double mastoid operation. The cases continued to multiply. The staff was busy day and night through January and February, in the effort to stem the tide of what is fairly described as an epidemic of mastoiditis. Fresh cases were sent to the hospital constantly. One man developed mastoiditis in the ward where he had helped as orderly to dispose of the waste gauze for the otitis patients, and a member of our own medical staff developed mastoiditis of the fulminating type. It is enough to make a thoughtful man ponder when a thing so extraordinary, so unheard-of, is seen. An average of two new patients with mastoiditis were admitted daily over a long period of weeks and there was presented in this series the cumulative evidence of the presence of a virulent organism; an organism that was communicable, and that had a specific tendency to affect such tissue as the mastoid cells.

The best results were obtained under these conditions by doing a prompt paracentesis in the acute otitis cases, and an early mastoid operation when there was purulent mastoiditis, besides taking special precautions against the infection spreading in the hospital.

The curve in the chart representing the number of cases of mastoiditis fell rapidly in the latter part of February to what may be termed a normal level and since that time there have been very few cases. A definite proportion of the patients presented a different type of infection from that seen in civil life, in that it was more communicable and that the mastoiditis was more quickly followed by complications. It seems that once an epidemic has gained headway in the military encampments the causative organism shows increasing and unwonted virulence. Several of the patients developed streptococcus meningitis which failed to respond to surgical treatment, but this did not occur where the cases were seen early in the course of the disease. It is probable that with a more complete understanding of the factors which tend toward such epidemic conditions there will be found valuable means with which to combat them.

Dr. Arthur A. Small, Chicago: It is a remarkable sight to see ward after ward of cases of mastoiditis following measles and streptococcus meningitis. From the standpoint of the medical service the interesting thing was this: Many cases of mastoiditis developed in the pneumonia cases, and those mastoids gave no sign objectively or subjectively of trouble with the mastoid cell but were found postmortem. At the commencement of our service we were undermanned and overcrowded, so that the cases could not be looked at so carefully as they were later, and we also found that otitis media in pneumonia also developed with very little pain and with practically no pain until a rupture occurred, so that now that we are better manned there are standing orders that in all these cases of pneumonia the ears must be examined daily in order to prevent acute suppuration of the middle ear.

Another important feature is the occurrence of meningitis. Patients with mastoiditis would be operated on, a perfectly clean operation being done, and then basilar meningitis would develop three or four weeks after the mastoid cells had been cleaned out thoroughly.

Dr. Walter E. Scott, Adel, Iowa: The cases discussed resemble mastoiditis as found in children. Very frequently in children the first evidence of a mastoid trouble is indicated by the ear standing out from the head. Perhaps the otitis media has been overlooked and there has not been any pain to indicate mastoiditis and the first symptom noted is the ear standing out from the head. Such a rapid and virulent form may be due to the fact that there is no acquired immunity, as children have not battled with the streptococcus or the germs in question as have adults. That would indicate that we had in the soldiers either an increased virulence of the streptococcus or a fertile soil due to the measles. Is it not likely that the middle ear and the mastoid cells contain bacteria normally, as do the nose and mouth, especially in exceedingly dry weather such as we had this winter, and that these infections and infections of all mucous membranes are more apt to take place? Again, I might simply mention the fact that the eruption of measles occurs on a mucous membrane as well as on the skin, and that the predilection of these structures may be due to the fact that the lining of the mastoid cells are related to the mucous membrane structures.

Dr. John B. Potts, Omaha: I was in Camp Shelby during the latter part of this epidemic. You will remember that the chart here showed the decline had become quite marked at that time. Most of the cases I saw developed with marked suddenness and a lot of pain. I mention this to draw another distinction between the cases in the other camps and the *Streptococcus viridans* cases at Camp Shelby. At this time, by a systematic method of having all suspicious cases reported at once, and in addition making thorough inspection of all the wards in the hospital daily we were able to see all cases developing there early. Paracentesis was done very early. A reddened slightly bulging drum was an indication for paracentesis. In many of the cases not only fluid but gas was present. My opinion of the basilar meningitis cases that occurred in Camp Shelby is that we had a septicemia either coincident with mastoiditis or else secondary to mastoiditis. The early conservative mastoidectomy done was the rational treatment and the means of saving many lives.

Dr. Abraham Zingher, Camp Shelby, Miss.: During the past six weeks I had an opportunity to study these streptococcus cases, and I was able to isolate the same type of organism not only from empyema cases but also from infected mastoids and surgical wounds. There were local infections in which I was able to isolate a similar strain of *Streptococcus viridans*, which differed considerably in its cultural characteristics from the type usually seen in cases of subacute endocarditis and in cultures taken from the tonsils. On blood plates the organism produced at the end of 24 hours large, irregular, moist colonies, which became flat and dry at the end of 48 hours. The colonies at first resembled closely those of the *Streptococcus mucosus*. Clinically the organism did not seem to have the same virulence as the hemolytic streptococcus, which caused such a high mortality from pneumonia and empyema in many of the camps last winter. At Camp Shelby the mortality from empyema was comparatively low, only 10 per cent., showing that the organism producing a majority of these infections had relatively only a mild virulence. There seemed to be a general distribution of this type of *Streptococcus viridans* throughout the camp, giving rise to middle ear infections, mastoids, pneumonias, empyemas and wound infections. One case which I have particularly in mind was that of an amputation of the leg. The patient died. A blood culture taken before death showed the same type of *Streptococcus viridans*, which was also isolated from the suppurating amputation wound. At the necropsy we found an extensive infection of the serous membranes of the chest, both pleurae and the pericardium being filled with pus. There was also a substernal abscess. There were no evidences, however, of a pneumonic process. The pus from the pleurae and pericardium showed the same type of *Streptococcus viridans* as was isolated from the blood culture.

Dr. George H. Lathrope, Morristown, N. J.: I am glad Major Small brought out the question of the extension into the meninges. The pathway that infection will take from the throat into the meninges is not yet found. The pathway from the throat into the middle ear is probably a direct extension from the throat by way of the eustachian tube into the middle ear and then into the mastoid. I should question very much, though I don't know how it is going to be proved one way or the other, the idea which Dr. Scott brought forward that the infective organisms lie in the mastoid in a quiescent condition. From what I have seen of infections following an acute throat trouble I am inclined to think they usually come on fairly suddenly and in a definite sequence. From that I should argue that when organisms get into the mastoid they start up trouble or die out at once. The question of hematogenous infection of the meninges is one which we have always to bear in mind; or hematogenous infections anywhere. We are too apt to make all infections direct extensions through neighboring tissues, and I don't believe that is always the case by any means. We had two or three cases, one in particular which I recall of basilar meningitis, when we could find nothing but an infection of the ethmoid cells, and there was not, as in some of the mastoid cases, any particular expression of the meningitis in the neighborhood of those ethmoid cells.

PHARMACOLOGY IN THE WAR*

TORALD SOLLMANN, M.D.
CLEVELAND

It is the problem of the war for a country to meet and to defeat not only the human enemy, but the forces of nature. Severe necessity arises in many forms, in many new garbs. That, however, brings out one of the compensations of the war: Necessity is the mother of invention, of conservation, of efficiency. The happy-go-lucky ways of peace no longer suffice. Every form of human endeavor is forced to the supreme effort.

Let us see what part the subjects of pharmacology and therapeutics have played and can play in the struggle. What in particular our own country has done and can do in this field.

The very opening of the war emphasized the problems of infections. The brilliant successes of serum therapy have robbed infections of much of their terror; but there was still far too much that remained unsolved. There was still a large scope for improvement in antiseptics. Everyone is familiar with the notable advances in this direction made by the Carrel technic and the Dakin hypochlorite and chloramin compounds. Both inventors are closely identified with our country. Other promising antiseptics have also been introduced, and may lead to further achievements in the conquest of infections. I need only to refer to the acridin dyes, and to the new mercury compounds introduced by Schamberg. The invention of new local antiseptics may also lead to further developments in the field of systemic chemotherapy.

Tetanus has been conquered by the prophylactic inoculations. In the early days of the war, however, these were not always feasible; and who knows when similiar emergencies may again arise? In such cases, the terrors of the disease were enormously mitigated, and according to the German reports at least, lives were undoubtedly saved, by the use of the magnesium injections. Their efficiency was essentially discovered and made safe by an American physician, Dr. S. J. Meltzer.

Almost equal in importance to the problem of infections was the problem of prompt and safe anesthesia. There will, perhaps, always be differences of opinion as to the relative value of the various anesthetics. There can be no doubt, however, that for certain purposes at least, nitrous oxid has peculiar advantages. Its extensive acceptance by the allied armies is largely owing to American influence.

There is still room for many improvements in anesthesia; and there is no doubt that pharmacology can contribute materially, not only to the invention of new anesthetics, but to their judicious selection and efficient administration, for the various purposes.

I have chosen these examples rather at random from others that might be named, to illustrate the task of pharmacology to meet old problems, modified quantitatively rather than qualitatively by the established conditions of warfare.

The later introduction of flame and gas warfare raised a large number of pharmacologic problems. The popularization of the wax treatment of burns emphasized the abuses engendered by secrecy in medication. It was found that the complex and secret foreign preparation was in no sense superior to a suitable grade of simple paraffin. It could also be shown that practically nothing could be expected from the addition of antiseptics and other agents to solid paraffin films. While negative results are not as desirable as positive results, they should serve to prevent useless clinical experimentation, and thus permit the direction of investigative energy into more useful channels.

Gas warfare has created a new field for applied pharmacology. The chapter of volatile irritants was suddenly raised from a minor to a major importance. The loose generalities that had been current would not have furnished the detailed knowledge necessary for the vital problems of military defense and offense.

Another very important group of problems was created by the shortage of many drugs, due to the increased demand for certain remedial agents under war conditions; the use of basic materials in munition manufacture; and especially the general interference with trade.

The uncompromising realism of the war suddenly awoke us to the fact that internationalism was as yet a dream. In this dream, most nations had overdone the principle of the division of labor, so that they had become dependent on others for the supply of many of their vital needs, and thus had sacrificed the essentials of independence to the fetish of economy.

Through the principle of internationalism, the business of introducing and manufacturing new chemotherapeutic agents had become largely a German industry. When we were shut off from this industry by the war, the first effect was a general sense of helplessness. Soon, however, this was replaced by the reaction of effort. There was created a great opportunity, as a challenge to the nation to ascertain its real needs, and to supply its deficiencies from its own resources.

Until sources of supply could be found or devised, it was necessary to do without many of the drugs to which we had become accustomed.

This may not be as great a misfortune as many would have supposed. The demand for many drugs was an artificial one, fostered by commercial enterprise, as had often been pointed out. What years of preaching could not accomplish in the way of testing out a restricted materia medica was accomplished by necessity at one stroke. As was to be expected, the results show that many of the drugs could be spared without great disadvantage, and some with actual advantage. Nearly every physician has found it necessary to "give up" some of the drugs that he prescribed before the war; and nearly every one must have noticed that the return to the older standard drugs was, in many cases, not detrimental to the patients. It is to be hoped that this lesson will be heeded, and that the war will have weeded out many of the products of commercialized over-enthusiasm. It behooves us to take care that this advantage is not lost by the introduction of equally or more worthless or unnecessary imitations and substitutes.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* From the Pharmacologic Laboratory of the Western Reserve University School of Medicine.

Great as was the need and the value of abridging the needless over-drugging, it was equally needful to supply those drugs of real value which were unobtainable because of the war, such as the organic arsenicals, and a proper selection of local anesthetics.

Here, our difficulties were due mainly to our own laws. The reason why this country could not be self-sufficient in these products was largely because the manufacturers of the drugs had been granted a monopoly, which placed us entirely at their mercy. This was due to the retention of patent laws and procedures adapted to conditions very different from those that now obtain. In this respect no other country had been so short-sighted or bound by tradition. As soon as Congress awoke to the seriousness of the situation and removed the fetters of its own making, the manufacturers had no great difficulty in supplying the legitimate needs of the country.

This advantage has been gained by emergency legislation of a temporary character. It is to be hoped that this legislation will be replaced by a carefully planned, permanent scheme of protection, so that these benefits may not be ended with the war.

VENEREAL DISEASE CONTROL IN THE ARMY*

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Venereal diseases, according to Surgeon-General Gorgas,[1] are the greatest cause of disability in the Army and present the most serious communicable disease problem of the war. In meeting this large problem, the Army is aiming to get maximum results by applying basic epidemiologic principles through sound administrative measures and controlling its methods by the statistical study of results.

EPIDEMIOLOGY

Compared with most other communicable diseases, the venereal diseases are well understood. Their causative organisms have been discovered, and the methods of transfer of infection are thoroughly known.

The three principal venereal diseases, syphilis, gonorrhea (including all gonococcus infections) and chancroid, are spread essentially by contact. The commonest manner of transfer is through sexual intercourse, and all the other ways of spread may well be regarded as incidental or secondary to transfer through promiscuous sex relations. As long as venereal diseases are prevalent there will be many infections through other methods than sex contact, for example, the transmission of syphilis from the mother to the unborn child, the spread of syphilis through kissing or by the use of common drinking or eating utensils, the gonorrheal infection of the eyes of the child in the birth canal, the infection of eyes by fingers soiled with gonorrheal discharges, and the infection of children with gonorrhea through contact with soiled objects in the household.

The problem of control is simplified by the fact that these diseases do not exist in the lower animals and are not carried by them. Neither is the transfer of infection by inanimate objects common, as the causative organisms tend to die out rapidly away from the human body.

Another important fact in the epidemiology of venereal diseases has a very direct bearing on methods of control. These diseases are spread principally by disease carriers, persons who appear to be well and regard themselves as healthy, but who are nevertheless capable of transmitting infection.

CONTROL

The methods of control of venereal diseases are essentially the same as those of other preventable diseases limited to human beings and spread by contact. We cannot include in these methods, as in some diseases, the artificial immunization of individuals, because no successful methods have been discovered. We have at hand, however, methods that are capable of reducing venereal diseases to an almost insignificant amount. These methods are the prevention of infective contacts, through various measures, later to be described, and the early treatment of persons who have been exposed in spite of these measures. The method of the treatment of persons after a known or suspected exposure is illustrated by the dropping of silver nitrate into the eyes of the new-born child to insure against gonorrheal infection, and by the early, or prophylactic, treatment of soldiers after a known or possible exposure to venereal infection.

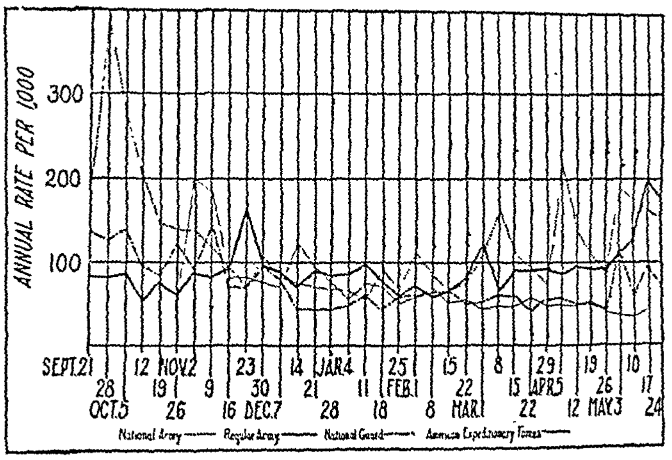

Fig. 1.—Annual venereal disease rates per thousand men in the National Army, Regular Army, National Guard and Expeditionary Forces by weeks for the period from Sept. 21, 1917, to May 24, 1918, inclusive.

Control of venereal diseases has been totally inadequate in civilian life because public health authorities, with few exceptions, have until recently felt little responsibility for the control of these diseases, which, taken together, have no rival, not even tuberculosis, in their importance as a public health problem. They are highly prevalent, very destructive, and most preventable.

THE SIZE OF THE ARMY'S PROBLEM

In the Army, venereal diseases exceed all of the other more serious communicable diseases in the total number of cases and the total disability caused. Figure 1, shows the annual venereal disease rate per thousand men, by weeks, in the National Army, the National Guard, the Regular Army and the Expeditionary Forces. In Figure 2, the annual venereal disease rates per thousand for the several armies are presented by months. While showing the prevalence of venereal disease in the Army, these two charts give little information regarding the results of control measures in and around Army camps. The fluctuations depend principally on the number of new troops brought into the Army from the civilian population with its high prevalence of venereal diseases. The shape of the curves is largely determined by the number of added troops examined for the first time within the several weeks or months.

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

[1] Gorgas, W. C.: The Venereal Diseases and the War, Soc. Hyg., 1918, 4, 3, 39.

There has been much unintentional misinterpretation of the venereal disease figures of the Army, owing to failure to understand the method through which the annual rate for a given week or month is obtained. All cases discovered and recorded for the first time in a given week are multiplied by 52, as an annual rate is desired instead of a weekly rate, and divided by the total number of men in thousands, to obtain the rate per thousand. Thus, if one man in a group of a thousand men was found to have venereal disease in a given week, the annual venereal disease rate for that week would be 52 per thousand, and it would be a grave error to quote the figures in such a way as to give the impression that fifty-two infected men had been discovered in the thousand men in one week.

In Figure 3 is shown the relative prevalence of venereal diseases to others of the more important communicable diseases in the Army, and it will be noted that venereal diseases, as a group, are the most prevalent of these diseases.

The burden of venereal disease is suggested also by Figure 4, which shows the percentage distribution of the more important communicable diseases in the Army and also of injuries, computed on the basis of all diseases and injuries reported. Again venereal diseases, taken as a group, head the list.

For measuring the results of venereal disease control work in the Army and in extracantonment areas, the figures of total cases recorded are of little value, as the many cases brought in by newly drafted men mask the relatively small number in which the infection was contracted after the men were in uniform. In Figure 5 are shown the annual rates per thousand men for cases contracted before and after enlistment in five National Army camps, one National Guard camp, and one department of the Army (Camps Lee, Sherman, Upton, Meade, Custer and Kearney and the Western Department). Complete figures for the full period covered are not at present available for other camps or departments, but these figures are probably representative.

The annual rate for early, or prophylactic, treatments also is shown in Figure 5. The annual prophylactic rate, when divided by 52, gives the average number of men applying for prophylactic treatment in a given week in a thousand men. When it is kept in mind that some men will apply for many treatments in the course of a year, it is evident that many men are completely avoiding exposure, and escaping venereal disease for that reason. The curve for the last few months suggests that the educational program is producing increasing results.

The amount of venereal disease contracted by the men after putting on the uniform is astonishingly small, while the amount of chronic venereal disease brought to the Army from civil life is a serious burden. The recent Army experience with venereal disease contradicts the popular impression that the boys and young men are under such influence and protection at home that they are in little danger of being exposed to venereal disease, but that in the Army they are exposed to extreme temptation and are most certain to succumb.

In fairness to the civilian population, it must be pointed out that the disease brought into the Army is the accumulated uncured disease of the newly enlisted men. These cases, some of them of years' standing, are compared in the chart with the cases freshly contracted in the Army. Accurate estimate cannot be made of the amount of venereal disease which would have been contracted if the soldiers had remained civilians, but the contrast between the old and new cases shown in the chart is so great that it seems safe to conclude that in civil life the men would have contracted much more venereal disease and would have secured many fewer cures through treatment. In any event, only a small part of the cases are contracted under Army conditions of good discipline, protection against exploitation, education, and early, or prophylactic, treatment.

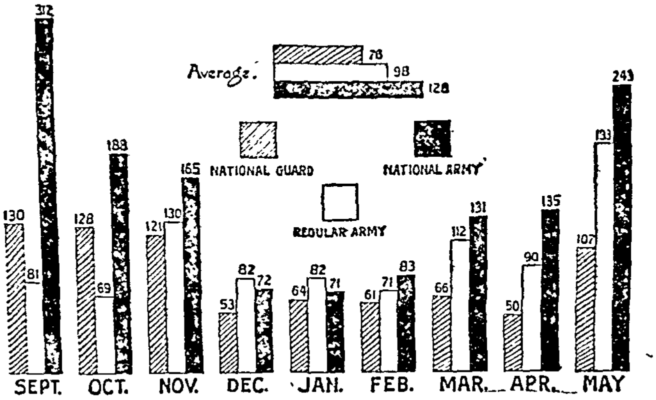

Fig. 2.—Annual venereal disease rates per thousand men in the National Guard, National Army and Regular Army by months, for the period from September, 1917, to May, 1918, inclusive and the average rates for the same period.

Figure 6 is a cartoon prepared for use with popular exhibits. It is intended to awaken the public to its responsibility for the Army's disability from venereal disease. Less than one sixth of the venereal disease burden of the Army, according to the data in Figure 5, can be reduced by the control and protection of the soldier. The remainder can be prevented only in the communities from which the future soldiers will come. It is the aim of the Army to help create a popular demand for venereal disease control by public health officials, with the assistance of law enforcement and educational agencies.

In Figure 7 are shown data available for a short period for five National Army camps, Camps Dix, Lee, Upton, Meade and Pike. These figures show even a lower proportion of cases contracted after enlistment, about one nineteenth of the total number. The chart gives the figures separately for syphilis, gonorrhea and chancroid, thus permitting a comparison of the relative prevalence of these diseases.

In Figure 8 are shown rates for Camp Lee for venereal disease contracted before and after enlistment, segregated according to colored and white troops. The relative number of white and black troops newly brought into camp each week is not shown, and therefore a close comparison between the curves is not justified; but the chart illustrates the relatively large amount of venereal disease brought by colored troops into some of our camps. Any plan for venereal disease control which neglects the problem in the colored population is shortsighted and will fail to get maximum results.

At Camp Lee, by direction of the Surgeon-General, a psychologic study was made of the white men isolated for venereal disease. At the time of this study, 12 per cent. of the negroes and 2 per cent. of the white men in the camp had venereal disease. Among these white men, 34 per cent. were unable to read or write English with sufficient facility to take the tests. In the camp as a whole, only 18 per cent. were unable to do this. The white men able to take the psychologic tests obtained a median score approximately 75 per cent. as high as that for the camp as a whole. Moreover, less than half as many of the diseased white men, in proportion to total numbers, obtained high scores, as did the white men in the camp as a whole. A low grade mentality seems to increase the probability of getting a venereal disease and keeping it. A successful campaign against venereal disease must reach persons of this class and diminish the number of infections among them and increase and improve their medical treatment.

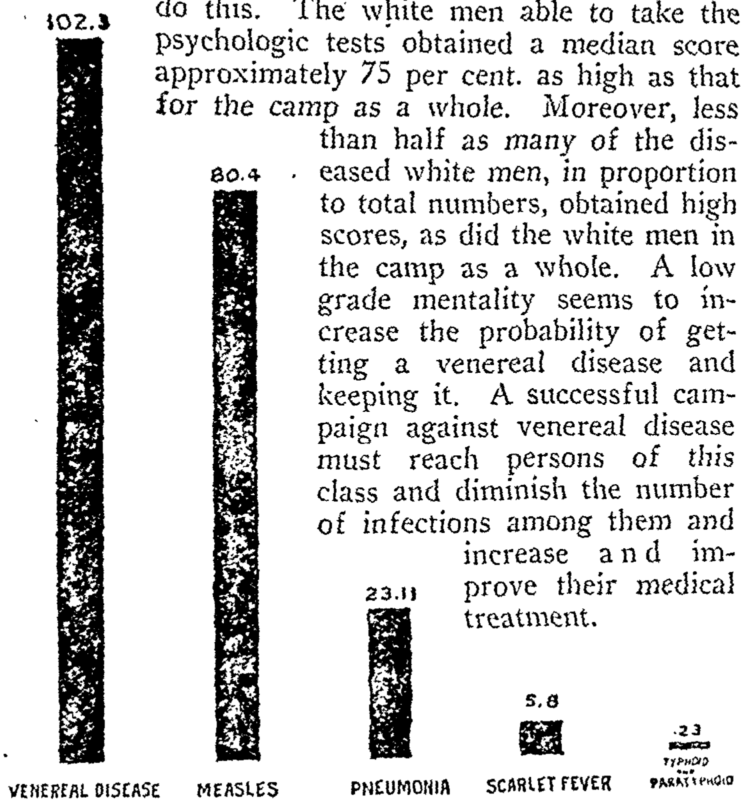

Fig. 3.—Comparison of the annual rates per thousand men for all troops in the United States between Sept. 21, 1917, and May 31, 1918, of certain of the more important communicable diseases.

VENEREAL DISEASE IN THE CIVIL POPULATION

Complete records of the number of drafted men having venereal diseases would furnish a most valuable index of the prevalence of these diseases in men of the draft age in the civil population. Such figures are not at present available, but the report of the Provost Marshal-General to the Secretary of War on the first draft showed that 4.27 per cent. of the rejections in a group of 10,000 men were due to venereal diseases.[2] From one of the National Army camps, Camp Lewis, figures were submitted showing that 3.04 per cent. of the men sent to camp were found to have venereal disease on examination on arrival at camp.

CONTROL MEASURES AMONG THE SOLDIERS

Before the present war, the principal emphasis in the prevention of venereal disease in the Army was placed on the instruction of the soldier against exposure and in the administration of the early, or prophylactic, treatment to those who had exposed themselves in spite of instruction. The Army had little success in persuading civilian communities near Army posts to protect soldiers against exploitation through commercialized prostitution and the sale of liquor. Conditions near Army camps were prone to be made worse than elsewhere by uncontrolled exploiters who sought the soldiers' money. In the present war, all are interested in the soldier's welfare, and most communities respond patriotically to any definite request of the Army for correction of conditions that would tend to demoralize or disable the fighting man. With the best possible assistance by civilians, much work would still have to be done with the soldier himself.

Within the camp the soldier is instructed to avoid exposure to venereal disease. This is done through company commanders' talks, special lectures, moving pictures, stereomotorgraph exhibits, and pamphlets. The Army film "Fit to Fight" is a moving picture drama, which is proving most effective. The soldier is given not only a strong appeal to keep himself morally clean and physically fit, but he is also further restrained from sex indulgence by information about the venereal diseases and the disability that they cause. As an additional safeguard, the men are instructed to report for the early, or prophylactic, treatment in case they should expose themselves in spite of the advice and information given them. They are told of the Army regulation requiring that every soldier exposing himself must report at the Army prophylactic station, or be subject to court martial. The soldier is also instructed that he will lose his pay while disabled from venereal disease, and will be confined to camp as long as he is infectious. Even the instructions about prophylaxis seem to reduce the number of exposures to venereal disease by impressing the soldier with the serious consequences which may follow the patronizing of prostitutes.

The early, or prophylactic, treatment is given in the camps and also at Army prophylactic stations maintained in cities visited frequently by soldiers. The prophylactic treatment record serves as a valuable index of the success or failure of the law enforcement measures in making prostitution inaccessible. The prophylactic treatment consists of the cleansing of the parts and the injection of a 2 per cent. protargol solution, or approved equivalent, and the external application of 30 per cent. calomel ointment.

It is in the soldier's playtime that he gets into trouble. Telling him what to avoid is not enough. The War Department Commission on Training Camp Activities has realized this fully. It is supplying facilities for athletics, theatricals and other forms of recreation, so that the soldier can have a good time through clean sport and harmless amusement. This work is going on within the camp and also in the nearby communities.

At least twice a month every soldier is inspected for venereal disease and other infections. If found infected, he is put under treatment, so that he can be rendered noninfectious and returned to duty as soon as possible. As a protection to the civilian community, he is restrained to the camp as long as he could transmit venereal disease. He loses his pay while disabled, and he is also tried by court martial and punished if he violates the order requiring the taking of the early, or prophylactic, treatment.

In many camps the soldier who has venereal disease is questioned as to the source of his infection, and, when practicable, the information is turned over to the civilian health authorities to be used as a clue in discovering venereal disease patients who need isolation and treatment. When the soldier is unable to give the correct name or an identifying description of the prostitute, the building in which the infection took place is often stated. This information helps the health authorities and law enforcement officials to detect the most dangerous venereal disease carriers, and the lodging houses and hotels that cater to them. It assists the authorities to find those carriers whose activity and infectiousness are such that they are actually infecting soldiers and probably civilians—sometimes in large numbers. From the standpoint of epidemiology this method is highly important. It is similar to the finding of the most dangerous typhoid carriers by investigating outbreaks of typhoid fever caused by them, and tracing the infection back to its source. The method is selective, as it tends to pick out those infectious persons who are exposing the most people and are clever enough to be escaping the law enforcement and health authorities.

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[2] Report of the Provost Marshal-General to the Secretary of War on the First Draft Under the Selective Service Act, 1917, Government Printing Office, 1918.

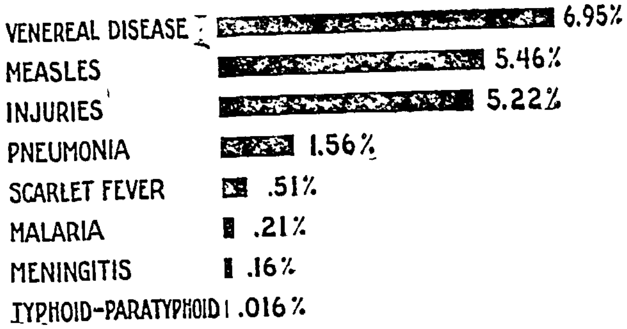

Fig. 4.—Percentage distribution of injuries and certain of the more important communicable diseases based on the total number of diseases and injuries reported, for all troops in the United States from Sept. 21, 1917, to May 31, 1918.

CONTROL WORK AMONG CIVILIANS

Infection of the soldier with venereal disease always involves the civilian. The greater part of the infections in our Army were contracted before the men enlisted, and the civilian alone can correct the conditions responsible. The lesser part were contracted by the soldier from civilians after enlistment, and this problem can be solved only through the cooperation of both civilian and Army agencies.

When the war began, the importance of work for the protection of the enlisted man in civilian communities near the camps was fully realized, but the importance to the Army of protecting the future soldier in his home town was not yet apparent. The War Department Commission on Training Camp Activities undertook a most active campaign to diminish the temptation of soldiers. Emphasis was placed on the repression of prostitution and bootlegging in extracantonment zones and nearby cities. The work has been of greatest assistance in the control of venereal disease in the Army and should be given much of the credit for the low rate of infection with venereal disease after enlistment.

At the present time, twenty-six commissioned officers of the Sanitary Corps of the Army are engaged in the Law Enforcement Division of the War Department Commission on Training Camp Activities, in combating venereal diseases, by means of stimulating the enforcement of municipal, state and federal laws having to do with the suppression of prostitution and of liquor selling to soldiers. In this way more than eighty red light districts have been abolished, including thirty-four outside the prescribed 5 mile zones around camps and at distances varying from 7 to 100 miles from the camps. More than 200 cities and towns of the various states have cooperated in the abolishment of districts, the more drastic enforcement of present laws, and the enactment of new legislation, especially that designed to enable the authorities to cooperate effectively with the Surgeon-Generals of the Army and Navy in protecting soldiers and sailors against venereal diseases.

There is also carried on by the Law Enforcement Division most important work with women and girls, conducted by a large number of protective workers, and also work by the Section on Reformatories and Detention homes, aimed at the provision of facilities for the isolation and treatment of women and girls having venereal disease.

In the work among women who have become infected through prostitution, effort is made to return them to society not only well in body, but trained for self-support through legitimate occupation. Some are feebleminded or incorrigible for other reasons, and for them prolonged or permanent custodial care is sought. This work is handicapped by the limited capacity of the state institutions available for the segregation of these persons so highly dangerous to the public health.

Many male venereal disease carriers pass through the courts and are lodged in prisons and jails. The men arrested for sex offenses come under the same laws and regulations as the women, and in most states may be examined and isolated if infected. A much larger group of infected men are sent to prisons and jails for other offenses, and were formerly permitted to serve their terms and go out uncured to spread syphilis and gonorrhea. Prison officials throughout the country are being interested in their opportunity to clear up a vast number of venereal disease carriers, male and female, by proper treatment within the prisons. A great stimulus to this work was given by a recent letter of the United States Attorney-General to all United States attorneys instructing them to see that all persons arrested under federal laws for certain offenses are examined for venereal disease by the local health authorities, if they will do so, and other-

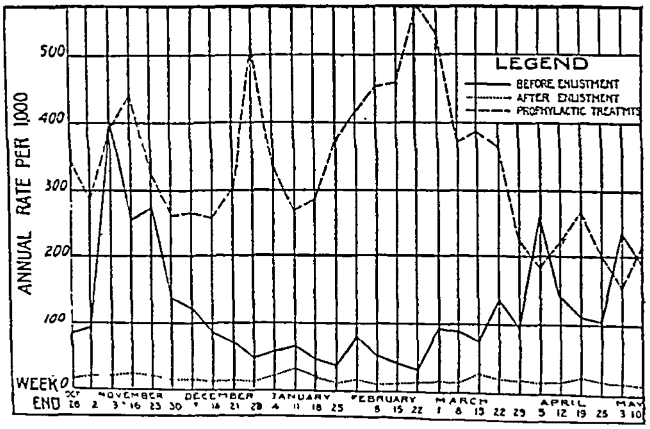

Fig. 5.—Annual venereal disease rates and prophylactic treatment rates per thousand men by weeks for Camps Sherman, Lee, Upton, Meade, Custer, Kearney, and the Western Department, from Oct. 26, 1917, to May 10, 1918, inclusive, showing the amount of venereal disease contracted before and after enlistment.

wise through special arranagement. If the diseased person is sent to prison, the prison authorities are to be notified so that treatment will be given, and if the patient is discharged before he or she is noninfectious, the health authorities are to be notified in due season, so that they can institute quarantine and administer further treatment as a protection to the public.

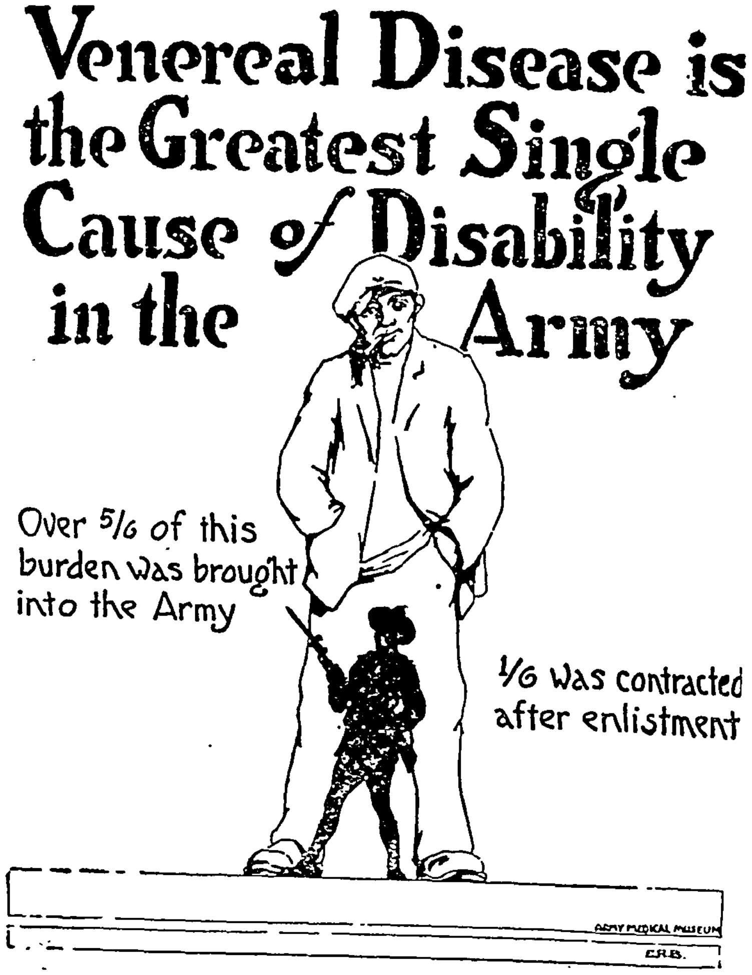
Venereal Disease is the Greatest Single Cause of Disability in the Army
Over 5/6 of this burden was brought into the Army
1/6 was contracted after enlistment
ARMY MEDICAL MUSEUM
C.R.B.

Fig. 6.—Cartoon based on the statistics presented in Figure 5, which showed that over five sixths of the venereal disease cases in six camps and one department were contracted before enlistment.

While the Law Enforcement Division is a powerful health agency, as it represses prostitution, which is the most prolific source of venereal disease, its work must be supplemented by educational and public health activities of other kinds in civilian communities.

The Training Camp Commission is carrying on educational work among men, particularly those in the industrial centers, and among women and girls. A great deal of literature is going out, and popular lectures are being given. This instruction is bound to have its effect in fewer exposures to venereal disease and more cures among the infected.

COOPERATION BY PUBLIC HEALTH AGENCIES[3]

In the control of venereal diseases, we have essentially a public health problem, and the state and municipal health authorities can do a great deal to diminish their prevalence. The Surgeon-Generals of the Army, the Navy and the Public Health Service have approved a set of suggestions for state board of health regulations which are meeting general favor and are helping to establish a uniform American plan for venereal disease control. These suggestions were based largely on measures already in force in certain states and cities. They recognize that venereal disease carriers, male and female, must be controlled and cured, and that prostitution must be repressed if venereal disease is to be reduced to a minimum. They provide for the reporting of cases by office number and the quarantine of patients when necessary to protect the public health.

The Army, Navy and Public Health Service are receiving the cooperation of many agencies in venereal disease control among civilians. The Red Cross is maintaining twenty-four venereal disease clinics in extracantonment zones, and the Public Health Service is furnishing the medical personnel. States and cities are organizing venereal disease control work, often under a separate bureau or division with special funds.

In thirty-four states and one territory, venereal diseases are already required to be reported. In the following twenty-six states and one territory, according to reports received by the Surgeon-General of the Army up to June 20, the report is made by physician's office record number: Alabama, Arizona, Arkansas, California, Connecticut, Georgia, Hawaii, Illinois, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Washington, Wisconsin and Virginia.

In the following eight states, the report is made by name: Colorado, Florida, Indiana, Maryland, New Jersey, Ohio, West Virginia and Vermont.

In the following twenty-three states and one territory, these diseases may be quarantined by the health authorities when necessary to protect the public health: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Hawaii, Illinois, Indiana, Iowa, Kansas, Louisiana, Massachusetts, Minnesota, Mississippi, New Jersey, New Mexico, New York, Ohio, South Carolina, South Dakota, Texas, Washington and Virginia.

In the following eleven states there are separate bureaus or divisions of venereal diseases under the state board of health: Arkansas, California, Colorado, Illinois, Indiana, Louisiana, Massachusetts, Michigan, Minnesota, New York and Ohio.

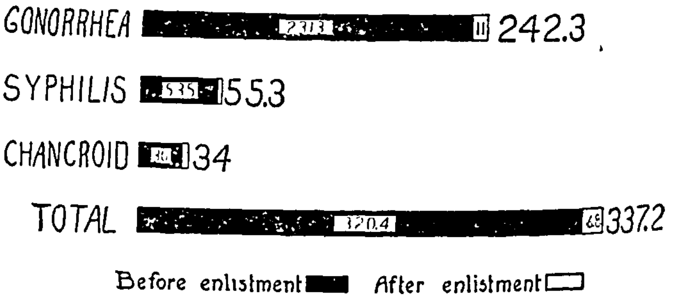

Fig. 7.—Annual rates per thousand men, before and after enlistment, in five National Army camps, Dix, Lee, Upton, Meade and Pike, for gonorrhea, syphilis, chancroid and total venereal disease, based on thirty-seven special weekly reports from March 29 to May 24, inclusive.

In the following fourteen states and one territory in which venereal diseases are reported by office number, the name of the patient is reported if he fails to continue treatment or to observe precautions to prevent spreading disease: Arizona, Arkansas, California, Illinois, Hawaii, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, South Carolina, Texas, Washington and Virginia.

The American Social Hygiene Association and other nonofficial social hygiene organizations are assisting actively in the educational work which is securing the public support necessary for success. Educational work is being carried on and venereal disease clinics are being established by various institutions and associations, as well as by health departments.

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[3] As this article goes to press the federal measures for assisting the states in combating venereal diseases under the provisions of Chapter XV of the Army Appropriations Act (1918) are being drawn. An appropriation of $4,100,000 is provided for medical, law enforcement and educational work in addition to approximately $3,000,000 for the continuance of the activities of the commissions on training camp activities.

Venereal disease prevention has been greatly stimulated by the action of the United States Public Health Service in assigning officers in uniform to organize and direct bureaus of venereal diseases for state boards of health requesting this assistance. Definite arrangements for such assignments have been made with twenty-three states. In two additional states, North Carolina and Kansas, the Army is assigning medical officers to this work.

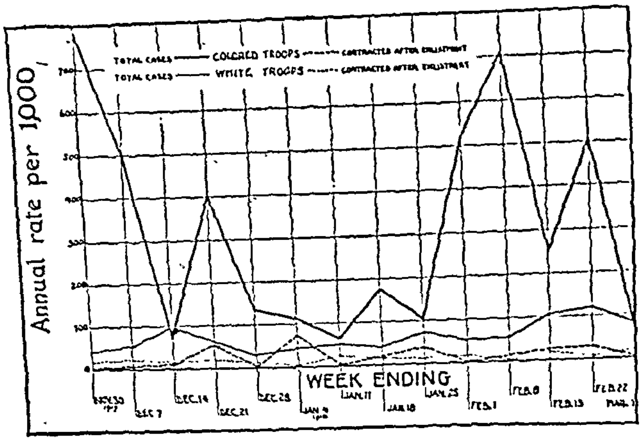

Fig. 8.—Annual venereal disease rates per thousand men, by weeks, in Camp Lee, for colored and white troops, before and after enlistment, from Nov. 30, 1917, to March 1, 1918.

Venereal diseases are at last being recognized by health departments as important public health problems. Their work will be successful if it is well administered and also based on epidemiologic investigations. If venereal disease becomes prevalent in a camp of soldiers or a civilian community, investigation should be made to ascertain the exact source and underlying conditions of that particular large number of cases. Conclusions without investigation have over and over again placed the source of infection hundreds of miles away from the true focus, and have resulted in serious errors as to the time of exposure.

It is clear that the largest results in venereal disease control in the Army will come through the work in the civilian population. This work requires the cooperation not only of federal, state and municipal health authorities, but also of the medical profession as a whole. Moreover, the support of the general public, fostered by a wise publicity, is necessary before greatest results will be achieved.

RESULTS OF CIVILIAN EFFORTS

A striking example of the result of control measures has been reported by the extracantonment officer stationed at San Francisco, and is shown in Figure 9. The upper curve shows the monthly annual rate per thousand men for prophylactic treatments in a large number of troops in and near the city. The lower curve represents the annual venereal disease rate per thousand for the same months. Infections contracted before enlistment were excluded. A number of the cases of venereal diseases, varying from 2 per cent. of the total in February to 21 per cent. in January, were also excluded because the Army records of sources of infection showed that the exposures were not related to San Francisco. Moreover, the venereal disease cases were charted more nearly according to date of infection by advancing the dates one week.

The fall in the number of prophylactic treatments and cases of venereal disease among the soldiers was coincident with active measures by the city health department for the examination of persons arrested for sex offenses and their quarantine and treatment, if infected, regardless of whether they were convicted or acquitted by the courts. Law enforcement, which was lax at the beginning of the period covered by the chart, was greatly strengthened during the first month, but was temporarily somewhat weakened in February, 1918. The decided fall in the number of prophylactic treatments and the drop in the number of new cases of venereal disease showed that there were decidedly fewer exposures. The organization of educational and recreational work among the soldiers was probably another factor in the result.

The experience of San Francisco showed plainly that large results could be obtained when law enforcement and the isolation and treatment of dangerous carriers are carried on side by side, each supplementing the other.

CONCLUSIONS

1. Venereal diseases are the greatest single cause of disability in the Army.

2. Most of the cases of venereal diseases among the United States soldiers, over five sixths of the total in units from which the figures have been obtained, were contracted by the men before enlistment.

3. Exposure of the soldier to venereal diseases is being successfully reduced by education, wholesome recreation, the enforcement of laws against prostitution and alcohol, and the discovery and control of venereal disease carriers.

4. These measures are applicable to civilian communities outside the extracantonment areas, and should be generally applied for the protection of the health of the future soldier and of the general public.

5. Venereal disease control should be under the general direction of the public health authorities, but they should receive the cooperation of educational and law enforcement agencies, and should not hesitate to employ lawyers and other men and women trained in nonmedical lines, just as engineers are called on to remove the causes underlying water-borne typhoid.

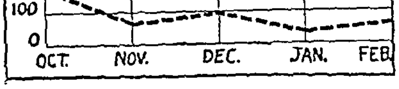

Fig. 9.—Annual venereal disease and prophylactic treatment rates for troops in and around San Francisco, not including cases contracted before enlistment and others obviously not related to San Francisco, showing results of public health measures and law enforcement. Solid line, prophylactic treatments; broken line, new cases of venereal disease.

6. In the Army, venereal disease is still further reduced by compulsory early, or prophylactic, treatment of men exposed in spite of the measures aimed at preventing such exposure.

7. The reduction of venereal diseases, as a group, forms the greatest public health problem of today and

the one which gives the most promise of solution in the immediate future. Efficient measures of prevention are known and are being demonstrated, and need only to be more widely applied.

ABSTRACT OF DISCUSSION

Col. V. C. Vaughan, Washington, D. C.: I do not see how any one can listen to this paper and learn these facts without concluding that it is ineffective to secure protection for our soldiers against venereal diseases without control of these diseases among civilians. When the Michigan National Guard was assembled a little more than a year ago in Detroit and was quartered in the armory, the buildings just across the street were occupied in part by prostitutes, and soldiers were openly solicited by them. When the Michigan National Guard, after this, was examined for transfer to the U. S. Army, it was found that a large percentage of them were infected with venereal diseases. A most unsatisfactory condition existed in Philadelphia and continued until the Secretary of the Navy actually took control of police affairs. Similar conditions have existed in Newport and Providence, R. I. The Army medical officer can control his soldiers in camp, and, to a certain extent, he can control them outside of camp. For instance, the commanding officer at camp has absolute control of his soldiers in the camp. If there is a house of prostitution in an adjacent village the commanding officer can put a guard around that house and prevent any soldier from going into it. He cannot, however, prevent any party coming out of the house, nor can he prevent any one except soldiers from going in. It is true that in certain camps the commanding officer has taken matters in his own hands and made raids on houses of prostitution. This was done at Spartanburg, S. C. I understand that it was done by the city of Spartanburg making soldiers local policemen and conferring on them the necessary authority. If it is desirable to protect the young men in the Army from venereal diseases, why should not the young men who are civilians, and, in all probability are soon to become soldiers, be protected from the same disease? Of all the camps in the United States, Pike led during the six winter months in pneumonia and in venereal diseases. Pike is located in Arkansas. There are boys at Pike from Michigan, Illinois, Iowa and other states. It seems to me that it is quite important for the fathers and mothers of those boys that they should have the same protection against venereal diseases at Pike that other sons have at Grant, Custer and Dodge. The same efficiency in the administration of all camps should be exercised. Section 13 of the draft law seems to make vigorous provision for protection of the soldiers against venereal disease in a zone about the camp. There are about seventy camps in the United States, not counting any camp with a population less than 10,000, and the zone around the camps is the United States, and federal authorities must take charge of these matters. There is only one thing to do, and that is to federalize for the time of the war the various health services of this country. What is true of venereal diseases is, in a somewhat different way, but fully to the same extent, true of other diseases. If it is proper to protect the boy in the Army from typhoid fever by vaccination, why should it not be proper to protect the boy in civilian life, the prospective soldier of the future, from the same disease by the same manner?

Dr. P. S. Schenck, Norfolk, Va.: At the request of the National Council of Defense, Norfolk was asked to do something toward the control of the venereal situation. The health department induced the city council of Norfolk to pass a series of ordinances which required that every person arrested for any cause shall go through a physical examination. These persons are in charge of the department of health until they are released. This necessitated the employment of several physicians to carry out the work. As a matter of control, I have adopted a card check system. When the person is arrested and taken into the police court, before any disposition whatever is made of the case he is subjected to a physical and bacteriologic examination. This applies to both males and females. If for any reason the first or preliminary examination is unsatisfactory, the person draws what we call a yellow card, which reads that a bacteriologic and physical examination is being made and he or she is to be held until the examination is completed. That card is attached to the mittimus, which goes over to the city jail hospital with the person, and no disposition of that case can be made by the police authorities as long as the yellow card is attached to the mittimus. When that examination is carried further, if we find that he is infected, the sheriff is given a red card. The red card is attached, in place of the yellow card, to the mittimus, and that red card will keep him in the jail hospital until it is substituted by a white card. He is put under active treatment by the physicians. We have also inaugurated a venereal clinic which is open every day in the year, but as long as that red card, which shows that that man or that woman is infected, is attached to the mittimus in the jail hospital he stays there. After a certain length of time, not less than sixty days—there is no re-examination made on a person under thirty days—if we find in the case of gonorrhea that we get two negative results taken from smears made from three different specimens and find from the bacteriologic examination that there appears to be no gonococci, a white card is given to the sheriff, and he or she is released. This card only states that we did not find the gonococci. We have in the course of erection a venereal hospital in which we propose to put these cases. We are also erecting on our city farm a home in which, after these young girls are released, we shall hold them until some disposition can be made of the case other than turning them back into the city. In the past six or seven weeks, since this has been put into effect, we have arrested approximately 800 persons, and 400 of them were infected. In the female population the girls run all the way from 11 years of age up to 56. We have had any number of 12-year-old girls. We were confronted with this situation, and it was very demoralizing to the department at first to find that we were taking young girls 12 years of age and 13 and 14, and for want of better facilities for handling them we were holding them in the jail hospital, where they were daily associating with the veteran prostitute, the drug addict and the alcohol habitué, and in order to correct that I induced our council to give us the money to build a hospital for these younger persons and remove them from that vicious environment.

Surgeon J. O. Cobb, U. S. P. H. S., Chicago: I am working on the venereal propaganda in the states of Indiana, Illinois, Michigan, Wisconsin and Minnesota in conjunction with state and local health officers. I speak to you as an optimist, though you are going to hear the pessimistic side of it. The states haven't the money, the municipalities haven't the money, and it will be a hard proposition to inaugurate a nation-wide propaganda that will stand on both feet. The state of Illinois has $6,000. In this state, at first, Dr. Drake was not very enthusiastic, but he got out and went to work in the municipalities, and now he is as enthusiastic as can be. Over in Michigan they have all of a million dollars that they can use. Naturally, Michigan is not afraid to tackle the problem. In Indiana they haven't anything. We have got to go to each town in Indiana and beg them for money and ask them to pass ordinances. They have not even the machinery for handling the question. In Wisconsin they have $7,500 and the legislature meets two years hence. They have not any machinery up there that is really worth while. Minnesota has $35,000, and they are getting under way. Now, that story is pretty nearly true of the United States. California has $30,000. Los Angeles appropriated $20,000 and San Francisco, I think, $40,000, and so it goes. The point is just this: Now is the time to strike. All these municipalities will come across, I am convinced. I was a pessimist myself when I started out, about the money side of it, but down in Indiana the towns are going to come forward and pass ordinances that are good ordinances, and they are going to start the machinery to make this a permanent movement, and that is what it ought to be. Colonel Vaughan has said that the country ought to be militarized for the venereal propaganda for the period of the war. We naturally think that is what it ought to be. The municipalities will do anything that the

Army asks to have done. Therefore, I think the movement is going to succeed.

In Indiana and Illinois and other places small bodies of troops are brought together to be sent to the camps. The venereal curve jumps right up there because these young men are having a last fling at civil life. It is astonishing what we find in these surveys. This sexual insanity of young girls and even of older women, mentioned by the gentleman from Norfolk, seems to be widespread, and is a serious problem. I wish also to call attention to the psychologic problem as affecting physicians.

Many doctors are pessimistic on the venereal question, and they are going to refuse to report certain private cases. Venereal ordinances must be of such a nature that there is no excuse for any physician not to report. Now, here is a fault in Illinois. These reports should be made to the state health office only, and never to the local health office, unless the patient fails or refuses to carry out his obligation. I am now convinced, just recently, that venereal cases should be reported by name. I will tell you why. Six of the states require the name, all the others require the name or number. In Chicago you can report by number, but you must give the address. The smaller towns report by number. Here is the objection to that, because that will go in to some local clerk and there might arise distrust on the part of the physician and patient. Indiana, to avoid that, has said that the physician must report directly to the state health officer. The report goes on a card index, and the state board will return all the records, if desired, when the case has been cured.

I have talked with a number of doctors, and some of them have said they would go to jail before they would report some of their cases. The Indiana regulation leaves no excuse for the doctor to refuse to report, as the report goes to the state and not to the local health officer. Now, then, in case this patient does not follow the instructions, then the doctor who had charge of that case must report it to the state health officer, and the state health officer will notify the local health officer to look him up, and then he is no longer entitled to secrecy. In the matter of quarantining houses of prostitution, Illinois has the best regulations. Where there is a house under suspicion, and still there is lack of convicting evidence, Dr. Drake deals with such cases effectively by means of a big red card, on which is printed in black letters, "Suspected Venereal Disease." This red card, for such cases, should be adopted by every state in the Union.

Dr. C. St. Clair Drake, Springfield, Ill.: Illinois was among the first states in the Union (I believe California preceded it) in attempting to control venereal disease. Our rules and regulations were promulgated in October and became effective Nov. 1, 1917. Experience of some seven months indicated that a revision of the rules was necessary. On May 1, 1918, we promulgated new rules and regulations which, I believe, cover every phase of the venereal disease problem. Possibly, and to some extent in some of the rules, we go a bit too far. There is one particular thing that I would like to elighten you on now, and that is our method of controlling the venereally infected prostitute. We have in our service plain-clothes investigators; two of them are men. These men are put into communities where we suspect the prevalence of prostitutes. On the strength of their reports raids are made upon the premises in which prostitution is practiced. Those raids are conducted with the assistance of the Attorney General of the state, because we find it very difficult in many instances to secure the cooperation of local officials. Most of the local officials are very reluctant in admitting that there is any prostitution in their town. When the arrested parties are taken to jail they are immediately subjected to a medical examination. Specimens for examination are sent to the state laboratory. Reports are returned very promptly to the local authorities. The judge then calls the case up and advises the prisoners of the findings in their cases and commits those who have been found to be infected to hospitals for detention and treatment, with the instruction to return the infected individuals to the court when cured. Under arrangements of that kind we have in hospitals in the state of Illinois at the present time some eighty-five to ninety infected prostitutes under treatment. One of the chief advantages of that particular method is that it places the expense of hospitalization and medical treatment on the county in which the prostitution existed, and it amounts to a very considerable sum, and tends to make the county authorities very reluctant about tolerating conditions of that kind in their county. We find that when they realize the expense that is to be imposed on them they are very keen to eliminate prostitution. We impose this expense on the county authorities under our pauper law, and practically every state in the Union has a law similar to the Illinois law, which provides that the indigent and sick found within the county shall be afforded necessary medical attention at the expense of the county; so what we are doing in Illinois in that regard can be done practically in every state in the Union. Dr. Cobb has referred to the placarding of premises. We have a provision in our rules that when an infected individual or a person suspected of having a venereal infection is resident on premises used for immoral purposes and will not consent to removal to a hospital where she may be retained for treatment, that the premises shall be placarded. In several instances it has been necessary to placard the premises and in all but one instance the placard has been up not more than two or three minutes. It is a very effective way of forcing patients to the hospital. We have taken rather extraordinary precautions to prevent the blackmailing of patients by quacks and unscrupulous practitioners of medicine. As to druggists, probably 60 per cent. of the venereally infected people obtain their treatment at drug stores. We require that druggists shall make a daily report of persons applying to them for treatment for venereal disease. In some cities, particularly at Rock Island, the druggists have responded very well; in fact, the druggists are reporting many more cases in Rock Island than are the physicians. There is a real need of standardization of these requirements, so that every state will have exactly the same requirements and so that the druggists in border-line cities, where the rules are being rigidly enforced, will not suffer at the hands of the druggists in other cities where rules are not being enforced. We are not having very much difficulty with the physicians in the state of Illinois. Wherever we get an opportunity to explain the provisions of the rules to the physicians they see that the rules are distinctly to their advantage, and we have no difficulty at all, after having the opportunity to explain in getting them to report their cases, and in a great number of instances in increasing numbers they are reporting their cases by name.

Bureau of Child Hygiene.—A report on infant mortality in Baltimore since 1829 and recommending a bureau of child hygiene to save the babies has been submitted to the mayor and Dr. John D. Blake, commissioner of health, by Dr. William T. Howard, assistant commissioner of health. The plan contemplates the abolition of the division of fumigation for diphtheria, scarlet fever and tuberculosis, and the transference of the money now expended in this work to the proposed bureau. Dr. Howard's recommendation includes the following new activities in connection with the bureau:

Supervision of the health department of midwives, with the right to conduct examinations for licenses to practice in Baltimore, and the power to withdraw licenses for proved incompetence.

Establishment of an additional maternity clinic, under supervision of the supervisors of city charities or the health department, or both, to be equipped for prenatal instruction of mothers and for infant welfare work.

Expansion of the prenatal and maternity work of the stations supported by the Mothers' Relief.

The development of at least one additional day nursery for colored babies in connection with the proposed maternity station.

Establishment of a day nursery at the Broadway Recreation Pier during the summer for babies of mothers who work in canneries, especially, but not exclusively.

Expansion of the work of the pediatric clinics of the University and Maryland general dispensaries.

An increase of at least one third of the present number of nurses engaged in prenatal and infant welfare work, through either the health department or the Babies' Milk Fund Association of Baltimore.

Passage of an ordinance compelling physicians in attendance or the head of the family, or persons in charge of institutions, to notify the health department within twenty-four hours of onset of the occurrence of cholera infantum and summer complaint and symptoms of pneumonia in children of less than 5 years of age; also an ordinance giving the health department the right to investigate and supervise, when it is deemed necessary, the hygienic and nursing care, including the feeding, of such children.

Establishment as soon as possible of a health center in the northwestern section of the city.

Dr. Howard shows that of 11,364 deaths in Baltimore last year, 1,783, or 15.69 per cent., were in babies of less than 1 year of age. The total number of deaths of babies of less than 5 years old was 2,446, or 21.53 per cent. of the whole.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address : : : : "Medic, Chicago"

Subscription price : . . . : Five dollars per annum in advance

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SATURDAY, AUGUST 10, 1918

THE INTERALLIED FOOD SITUATION

In a speech recently delivered by the United States food administrator, Mr. Herbert C. Hoover,[1] in London, he asserted essentially that the Allied food administrators are charged with the duty of managing the dietary supplies of 220,000,000 people in Europe and North America pitted against the Central Powers. This is something more than a problem of commerce and transportation or a test of modern agriculture; it is destined to be an enormous experiment in practical nutrition. It cannot fail to be of unusual interest to the medical profession to learn the broader aspects of the plans by which it is proposed to feed these vast numbers of human beings. Fortunately, as was recently pointed out in THE JOURNAL,[2] the Allied countries have entrusted the study of the food resources and food needs as well as the nutritional conditions in the respective nations to an interallied commission, so as to secure a physiologically reliable and sociologically acceptable outcome in correlated action by the highest authorities. In this way it is hoped to place the provisioning of the Allied countries on a sound scientific basis.

The establishment of the food requirements of man has been attended with much uncertainty and not a little debate. It is one thing to determine, even with admitted accuracy, what the minimal or sustenance diet of an individual may be, and quite another matter to decide where the optimal allowance lies. "Laugh and grow fat" may be a physiologic truth; but it gives little assistance to the dietitian who must provide for a large company of persons. Nor can the desire to attain a high degree of national vitality be satisfied by the mere calculation of calories. The modern well balanced regimen must provide not only for the exigencies of work and growth and the varying demands of age and sex, but also for the more subtle essentials that students of nutrition have only recently come to appreciate more fully.[3]

How have the interallied scientists met the situation as advisers to the nation? Such details as have been made public give an intimation of the best judgment of competent physiologists of recognized reputation. In the agreement reached as to the minimal food requirements of the average man, it was laid down[4] that "for a man weighing 70 kg., or 154 pounds, doing average work during eight hours a day, the food as purchased should have an energy value of 3,300 calories per day, but that a reduction of 10 per cent. could be supported for some time without injury to health." Bearing in mind that these figures are rated as minimal rather than optimal needs, and recognizing that the present period is one of enormously decreased food production and great loss of supplies, it must be admitted by every one who has followed recent studies on nutrition that the advised allowance is conservatively liberal. It will work no hardship on any one.

In view of the unlike views regarding the need of meat, a minimal ration of this food has not been adopted by the interallied conference. The recent voluntary reduction in meat consumption in the United States bears out the contention that the proteins of meat can be replaced by other proteins of animal origin, such as those contained in milk, cheese and eggs, as well as by proteins of vegetable origin. The conference even sanctioned the statement that no absolute physiologic need for meat exists. According to the published accounts it was considered desirable, however, to fix a minimal ration for fat at 75 gm.—about 2⅝ ounces per average man per day. This quota is to be made up from fats partly of vegetable origin and partly from animal sources. The commission expressed the opinion that if the amount of fat of vegetable origin was found to be insufficient it might be necessary to maintain a certain stock of animals to make good the deficit. Another item of physiologic import concerns the milling problem. It was advised that a uniform extraction of 85 per cent. should be adopted in all the Allied countries. This figure is slightly higher than the familiar extraction of patent flour in the United States, where it may apply only in case of scarcity.

These proposals are likely to win the approval of those most competent to determine the limits of physiologic safety in human nutrition; at least they have the stamp of a sane war time advice. With the added assurance of the food administrator that this nation is more than likely to be able to "deliver the goods" in the coming year, we may willingly and cheerfully continue our personal sacrifices in consumption, confident that we shall help to maintain the health, comfort and courage of the Allied nations by eating at the common table with them.

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[1] Reported in the public press dispatches of July 24, 1918.

[2] Science and the Food Administration in War, editorial, THE JOURNAL A. M. A., Aug. 3, 1918, p. 378.

[3] Newer Features of Adequate Dietaries, editorial, THE JOURNAL A. M. A., June 9, 1917, p. 1700; War Diet and Metabolism, Oct. 6, 1917, p. 1173; War Time Difficulties in Practical Dietetics, June 29, 1918, p. 2028.

[4] The essential facts, reprinted from the British Medical Journal, are taken from Science, July 19, 1918, p. 60.

DISCOVERIES AND DISCOVERERS

In spite of the wonderful achievements of modern science, it seems impossible to get the public to think in scientific terms. This is doubtless due to a fundamental weakness in our educational system. The tendency still is to think in terms of the eighteenth century rather than of the twentieth. Many times The Journal has been chided, even by its friends, for failing to take seriously preposterous claims made for alleged discoveries in medicine by well-meaning but self-deluded enthusiasts or by shrewd and consciencelcss charlatans. Far too often the attitude is that any alleged discovery in medicine, no matter how bizarre or how humanly improbable, should be taken up in all seriousness and subjected to the tests of modern laboratory methods. It was only a few years ago that a quack of unsavory antecedents brought forth an alleged cure for consumption—a disease that for years has been the subject of study by the best brains in the world — and a medical college spent thousands of dollars "investigating" the "cure," thereby giving it a standing that it would never have received otherwise and incidentally obtaining for the school an amount of publicity that may or may not have been desired. As The Journal said at the time, it would have been just as pertinent for a body of astronomers to determine by scientific methods whether or not the moon is really made of green cheese.

The point we would make is that the strides made by modern science have practically eliminated the possibility of men without training or special knowledge evolving any epoch-making discovery. In this connection an editorial in the *Scientific American* of recent date, dealing with the mechanical sciences rather than the medical, is well worth quoting in part. The editorial discussed the "Garabed" incident. "Garabed," as our readers know, was a name given to a device which one Garabed T. K. Giragossian claimed to have developed and which, so far as could be learned from the generalities in which Mr. Giragossian indulged, would take energy out of the cosmos and transfer it directly into mechanical motion. Mr. Giragossian would give no details regarding his "engine," but was so able to hypnotize Congress into a belief that he had something worth looking into that it passed a joint resolution calling for the appointment of five scientists to pass on the claims for Garabed. The investigation proved, as might have been expected, that the thing was unsound in principle and nonoperative as a device.

The methods by which Garabed was brought before the public savored strongly of those used by quacks in the medical world, the one difference being that Giragossian was apparently perfectly sincere and unequivocally honest. The point that we bring out, however, and which, as we have said before, was so well expressed by the *Scientific American*, is the utter futility of wasting the time of scientific men on alleged inventions or discoveries by men without training who substitute secrecy and glittering generalities for facts and accomplishments. Quoting the *Scientific American:*

> Scientific discovery, once an open field for all comers, is today becoming more and more a matter calling for the most intensive special qualifications. As the body of human knowledge broadens and deepens, it becomes increasingly difficult to make any material addition to it. Any one undertaking such a task must of necessity bring to it a long and careful training, acquired either in the refined atmosphere of the laboratory, or in the rougher school of close contact with the operation of apparatus constructed by those who have already qualified. In particular, he must possess a carefully developed power of making accurate observations and drawing correct conclusions. It is rather the habit to point to men like Edison and Maxim in refutation of these necessities; but they are not to be so refuted. These men are examples, raised to the *n*th power, of the great inventor who has qualified in the University of Hard Knocks and Long Experience.
>
> On these grounds, when a man comes before us in the self-assigned rôle of a great inventor, it is incumbent upon him to answer, not necessarily the bald question "Who are you?" but certainly the more searching one, "What are your qualifications to undertake this work?" Only by his answer can we decide whether he possesses a competence deserving of attention, or is but a dilettante playing with fire. Yet this obligation was one which Mr. Giragossian, far from meeting, did not even appear to comprehend. To every effort to ascertain his qualifications he replied in the same terms, that he was an honest man, and could prove it by letters from his technically nondescript collection of friends and sponsors. The very fact that more than personal integrity is necessary in a man who would unravel the secrets of the creation of energy appears to have escaped his comprehension.

The fundamentals thus stated apply with equal force to the sphere of medical discovery. At the time when medicine was pure empiricism it was not only possible but also probable that the medicinal value of certain products or combinations of products might be stumbled on by those untrained and unskilled. That time has passed. Today, while it is not impossible, it is so improbable that there is no justification in taking up the time of scientific men in investigating alleged discoveries by men who are utterly lacking in the fundamental qualifications needed for the study of the complex problems of human pathology.

TOBACCO SMOKE AND TUBERCULOSIS

However obvious the contention that statistics never lie may seem in critical analysis, there can be no question about the danger of error that all too frequently lies in the way in which such figures are interpreted. A recent statistical inquiry bearing on the health and habits of literally hundreds of thousands of young men and presumably applicable to an increasing number of young women has been published by authority of the Surgeon-General of the Army and is certain to be widely quoted when once its true import is appreciated. An expert of the War Department Tuberculosis Board has attempted to ascertain the effect of the inhalation of cigaret smoke on the lungs, a question that has aroused more than one thoughtful person in view of the seemingly inordinate increase of smoking that has developed as the years go on. Major Webb[1] has found from observations on several thousand soldiers that comparatively few nonsmokers (only 27 per cent.) have ronchi or sibilant râles; most smokers, on the other hand, do exhibit these signs of chronic bronchial irritation, and cigaret smoke inhalers almost invariably show them. It is thus clear, to quote a reviewer[2] of this report, that individuals who are habitually subjecting their respiratory tract to the far from soothing influence of cigaret smoke would be more likely to exhibit its effects, that is, inflammation, than those whose gaseous intake is confined to the more or less undefiled atmospheric air of town and country. Indeed, this is what might have been anticipated.

Major Webb's report goes a step farther, however, It is recorded that of a comparatively large body of young men the proportion discharged from active army service because of active tuberculosis was no higher among those who show evidence of the production of ronchi than among the nonsmokers with quiet chests. Webb interprets the data as suggesting that the inhalation of the smoke of cigarets does not aid in the outbreak of pulmonary tuberculosis.

The finding that men with bronchi in a state of chronic inflammation do not develop tuberculosis in larger numbers than men with what might be called more normal bronchi will seem to many to be at variance with the older belief that inflammations of the respiratory tract predispose to the disease. Krause,[3] who has attempted a more critical discussion of the meaning of the army statistics, points out, however, that in the light of present-day studies of inflammation, this state of the tissues, if it does anything, probably plays a part in resisting bacterial invasion. To quote Krause, inflammation is the visible expression of an animal organism's capacity to react to irritation whether the latter is mechanical, chemical or thermal; whether it is set up by organized or unorganized material; by inert or living substances, by grains of sand or bacterial parasites. If this is true, Krause continues, we must give up our ideas that inflamed tissues are especially favorable soil for bacterial invasion. They are the very reverse; they are points of unusual resistance.

It does not follow, however, that if inflammation does not lay a tissue more open to infection, dormant tubercles are equally protected thereby. On the contrary, hyperemia and congestion may help to disintegrate the mass and thus to assist in metastasis. In other words, "inflammation can have two very different effects, depending on whether it is concerned with implantation of bacilli or an action on a focus already present." It will doubtless make some difference whether the inflammatory reaction is mild or severe, and whether or not there are dormant tubercles in the tissues involved. All of these varied factors, as well as the possible constitutional effects of tobacco as such, must be taken into consideration before final pronouncements are made on a subject of such serious moment to our American youth.

THE NUTRITION OF BACTERIA

There is an enlightening frankness in the presidential address of Professor Rettger[1] of Yale University, before the American Society of Bacteriologists, wherein it is stated that "we are as yet in the dark regarding the real food requirements of bacteria." The widespread preaching that these lowly organisms are the scavengers that utilize practically all sorts of organic matter as food gives little indication of the rapidly growing evidence of the specific peculiarities of bacterial nutrition—of the suggestion that "the problem of dietetics in bacteriology is as real as in animal physiology." Rettger reminds us once more that the processes involved in the pancreatic digestion of protein are in a large measure reproduced by the proteolytic enzymes of organisms of the *Bacillus subtilis* and *Proteus vulgaris* types, certainly by the organisms of putrefaction. A new interpretation may be brought to the well known fact that bacterial enzymes are able to bring about the rapid cleavage of true proteins with the production of essentially the same decomposition products as those that are formed in ordinary alimentary digestion, namely, proteoses, peptones and various amino-acids.

The contention that bacteria are unable to derive nourishment directly from native proteins has been referred to in The Journal[2] as a striking contribution of recent microbiologic studies. Rettger, to whom fundamental investigations in this field are attributable, does not hesitate now to assert that in a medium in which there is no source of nitrogen other than proteins, bacteria will thrive no better than in a chemically pure saline solution. Even proteoses and peptones "are like stone to the bacterial cell." A preliminary cleavage of the protein by a digestive process appears to be indispensable.

In this respect, therefore, the bacterial cell closely resembles the animal cell. The correct pabulum for each of them appears to be represented by disintegration products of a simple type—amino-acids, for example, in the case of proteins—derived from available foods. Furthermore, according to indications that

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[1] Webb, G. B.: The Effect of the Inhalation of Cigarette Smoke on the Lungs: A Clinical Study, Am. Rev. of Tuberc., 1918, **2**, 25. This paper has also been published in the Military Surgeon.

[2] Krause, A. K.: Bull. Johns Hopkins Hosp., 1918, **29**, 106.

[3] Krause, A. K.: Tobacco Smoke and Pulmonary Tuberculosis, Am. Rev. Tuberc., 1918, **2**, 99.

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[1] Rettger, L. F.: The Science of Bacteriology and Its Relation to Other Sciences, Jour. Bacteriol., 1918, **3**, 103.

[2] The Resistance of Pure Proteins to Bacterial Decomposition, editorial, The Journal A. M. A., July 17, 1915, p. 257; Newer Aspects of Bacterial Metabolism, Nov. 11, 1916, p. 1448.

have recently been reviewed in THE JOURNAL,[3] it is not unlikely that bacteria require "promoters" of growth comparable with the vitamins that are now believed to play an important rôle in the nutrition of the higher animals. At any rate, the extracts of animal organs, as well as those of certain plant tissues, exhibit valuable nutrient potencies for bacteria which it is as yet impossible to supply in any synthetic medium of known composition. When these diverse nutritive factors of bacterial life and growth are better understood, the current systems of medium making and culture study, admittedly still crude in their general plan, will doubtless be the subject of profound and intelligent revision. Already the problem of the reaction of the medium in which bacteria grow, as expressed in its hydrogen ion concentration, is being considered from new angles which refined methods of measurement alone have made possible.

THE DIGESTIBILITY OF NUT OILS

In the food restrictions that have inevitably arisen among the fighting nations of Europe, the decrease in the amount of fat available for dietary purposes was early felt as a real hardship. This seems to have been particularly true in Germany, where the daily allowance of fat has at times undoubtedly fallen to surprisingly low figures. Kellogg and Taylor,[4] who have made an illuminating study of the food problem in relation to this country and to the war, have thus presented the possible reasons for the almost universal desire for fat: A diet low in fat does not lend itself to our normal types of cooking. Foods prepared without fat are not naturally cooked and do not suit the taste. A diet low in fat is rapidly digested, and as the sense of satiation in alimentation is in part connected with the duration of the process of digestion, fat-free foods do not give the normal satisfaction. Those two factors, the use of fat in cooked food and the acceleration of the process of digestion in the absence of fat, account for the dissatisfaction felt in Germany at present with the low fat intake. This is in part a matter of habit; the low fat intake in Germany today is as high as the normal fat intake, weight for weight, in Japan. Indigestion may ensue in any person who continuously follows a diet that does not give digestive and physiologic satisfaction.

In view of these circumstances, it was quite natural that when the need arose of saving fats, which are used not only as food, but also as lubricants and as sources of soaps and of the important glycerin entering into certain indispensable war explosives, there was an active search for every available source. At one time it seemed as if the supply of milk fat and of butter might be seriously impaired in this country as it was abroad. Fortunately, there is now less occasion for anxiety on this point, since the intactness of our dairy herds has been satisfactorily maintained, so that milk products are comparatively abundant. Meanwhile, many little valued or unknown fats have come into more or less prominence. Thus one hears of oil of theobroma (cacao butter) and the oils of the peanut, coconut, sesame and cottonseed, as well as the more familiar olive. Furthermore, there are the various mixtures of fats, some of them oils rendered harder by hydrogenation, which make up the oleo and nut margarins of commerce.

"In the days of the ancient Romans," says Mrs. Rose in a readable essay on everyday foods in war time, "vegetable oils were prized for food, and butter was used for cosmetics. In America today we are asking what is to become of us if we cannot have butter to eat! Such are the fashions in food." Wartime necessities frequently bid us to disregard gastronomic tradition and to content ourselves with the "next best" in matters of food. The recent study of vitamins has shown that certain fats, notably those of milk, eggs, liver and other animal tissues, are the carriers of growth-promoting properties which must not be overlooked. Prudence tells us, therefore, to include some of the fat-soluble vitamin in the diet, particularly in the case of growing children. Necessity may make us go a step farther and add other fats to the dietary. Before any innovation is attempted, it ought to be definitely ascertained, so far as this is possible, whether there is any danger connected with the proposed practice.

A series of studies at the United States Department of Agriculture[5] has indicated that lard, beef fat, mutton fat (kidney fats), butter, cream, chicken, goose, fish and egg-yolk fats, oil of theobroma, and olive, cottonseed, peanut, coconut and sesame oils are well utilized by the human body and may be used in amounts exceeding those of the ordinary diet, without causing any laxative effects. In the experiments, all of the fats were separated from the materials in which they naturally occur. Most of them are thus used in the ordinary diet, though with a few (egg fat and fish fat, for example) this is not the case. A more recent investigation by Holmes in the Office of Home Economics at Washington brings comparable data regarding a further group of fats obtained from some of the common nuts. These oils cannot be purchased in any considerable quantities and are little used in this country as such. Nevertheless, considerable quantities are consumed annually as a constituent of the nuts in which they occur. From 43 to 100 or more grams (1½ to 3⅓ ounces) of the oils were supplied by the diets tested. The oils were found to be well digested, the coefficients of digestibility being

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[3] Bacteria and Vitamins, Current Comment, THE JOURNAL A. M. A., Nov. 3, 1917, p. 1531; April 20, 1918, p. 1164.

[4] Kellogg, V. L., and Taylor, A. E.: The Food Problem, New York, 1917, p. 118.

[5] Langworthy, C. F., and Holmes, A. D.: Digestibility of Some Animal Fats, Bull. 310, U. S. Dept. Agric.; Digestibility of Some Vegetable Fats, Bull. 505; Studies on the Digestibility of Some Animal Fats, Bull. 507.

97.1 per cent. for almond oil, 97.5 for black walnut oil, 96.3 for English walnut oil, 99.3 for hickorynut oil, and 96.8 for pecan oil. The nut oils, which are liquid at ordinary temperatures, have practically the same digestibility as the common vegetable oils (cottonseed, peanut, olive, sesame and coconut oils), which are also liquid at ordinary temperatures. When it is further borne in mind that the nut oils did not exert any unusual influence on the digestibility of the foods eaten with them, we may admit the contention of the government expert that these fat products may be used freely for food purposes whenever they are available. And "fat is fuel for fighters."

Current Comment

THE MEDICAL PROFESSION AND THE WAR

More than 25,000 physicians have accepted commissions in the Medical Department of the Army, and at least 2,000 more are in process of being commissioned. Adding to this number those in the Navy, we can estimate that over 29,000 physicians have volunteered and are now either in active service or subject to immediate orders. The 5,000 asked for last May have been supplied; another 5,000 will be called for immediately, and probably still another 5,000 later on. It is now generally believed that the present plan is to raise an army of 5,000,000 men as soon as possible. This means at least 35,000, if not 40,000 medical officers. The way in which our profession has already responded to the call of the Surgeon-General demonstrates both the patriotism and the proverbial unselfishness of the average medical man. No doubt the same spirit would supply the 40,000. But this voluntary method of furnishing the Army with medical officers is as unfair and as unsatisfactory as would be the same method of supplying the necessary personnel for the fighting force.

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The physician who is prompted by a purely altruistic spirit, the one who is always willing to make sacrifices for his country, the one who is willing to give up a position attained through years of endeavor for the good of the common cause—these are the men who have been coming forward from the first, and who will continue to come forward. The man who wants to utilize the opportunity to make money, the man who would capitalize the sacrifices of a confrère, the indolent—these find it possible to explain—to themselves—why they do not volunteer. There are, of course, those whom the Surgeon-General's Office will not commission because it knows of justifiable exempting circumstances. There are those whose entrance into the service would be a distinct loss to their communities and, in the final analysis, to the government.

* * *

The democratic method—the correct method—to raise an army is compulsory selective service. The Journal, however, has always opposed—and would continue to oppose—a compulsory draft of physicians alone. Such a procedure would be against the spirit of the Constitution of the United States: it has been, is, and would be in the future, uncalled for and an insult to the profession. But a compulsory selective service of all men, which would include physicians, is ideal. It is for this reason that The Journal rejoices in the fact that Congress is finally seriously considering raising the draft age to 45 years. There will be opposition, of course, and it is possible that the maximum age will be reduced below 45. It is to be hoped not.

* * *

If the new draft bill becomes a law, it will help to solve the problems that now face those who are interested in the health conditions of the country. There never has been any doubt that the number of physicians necessary for the Army would be forthcoming. There is the other side, however, and that is that the voluntary system is likely to deplete certain communities. It has already seriously affected certain hospitals and medical colleges. Sanitarians, health officers and other officials who were doing important work in civilian life have entered military service, thus leaving vacant very important public health positions. The Provost Marshal-General's Office is bewailing the fact that a large number of medical men connected with the local, district and advisory boards are giving up this work to enter military service. With the compulsory selective service age increased to 45, there remains only the question of devising methods of procedure to utilize the medical man power thus made available to the best interests of the military forces and of the civilian population. Because of this, The Journal welcomes the conscription of the active man power of the entire nation, a method which is not only democratic, but has proved itself eminently fair and equitable to all concerned.

THE SUGAR RATION

For the first time our population is confronted by the prospect of a definite sugar ration. While it is true that there is no general compulsory mechanism outside of a certain amount of control through the trade, and the fact that our citizens are to be put on their honor by the Food Administration, to all intents and purposes a definite ration has been established. Two pounds per person per month is certainly an ample supply from a physiologic standpoint. It will be interesting to observe whether there are any effects on the American people from the decreased sugar consumption. There is no doubt that we have long been using sugar in a luxurious way, and that there are many persons who have a sugar habit that approximates in its craving the alcohol and tobacco habits. It has been said that excessive sugar consumption by individuals is an evidence of low moral resistance. The most pressing problem in connection with sugar before the Food Administration today is to see that there is a sufficient amount of it for the preservation of our fruits. This can be done only by decreased home use and by reduction in the manufacture of soft drinks and candy. The excessive amount of sweets used by our population, particularly during the summer season, has certainly not been advantageous to the general public health. Children in particular will profit by this sugar shortage. With the approaching harvest, which promises to relieve the existing shortages in various forms of food that have given us and our allies so much concern during the past year, there will be a tendency toward relaxation in food conservation. This would be most unfortunate at the present time, when it is vital to build up large reserve stocks of food against future poor harvests and in order to get the opportunity to put through the great offensive with which the war must be won. The constant reminder that the sugar supply is short will be evidenced by the rationing and the absence of the open sugar bowl from the table. This will be of value in calling our attention to the continued need of service and sacrifice in regard to food. The imagination of the American people has been caught by the fact that their individual savings gathered together and shipped across to the Allies have played a decisive part in the war in the last few months. Most of these savings were made in the presence of a surplus of food. It will be interesting to notice the reaction of our people in the case of sugar, in which the supply of America is to be decidedly short during the next few months. Judging from the past, they will welcome the opportunity to do their part to see that there is an equitable distribution of the essential foods between ourselves and our allies.

MEDICAL MOBILIZATION IN THIS COUNTRY AND IN GREAT BRITAIN

The procedure adopted by Great Britain, outlined under Medical Mobilization and the War in this issue,[1] reflects honor on the medical profession since it leaves the profession to work out its problems entirely alone. This is an honor which is undoubtedly merited because of the patriotism and the unselfishness which have always actuated the large majority of physicians. It is an honor which we are sure subsequent events will show to have been justified. Just how the medical profession of the United States will be affected by the proposed legislation for raising the selective service age is not yet known. The bills as introduced into Congress do not make any specific provisions that would cover the medical profession. There is no method under our present selective service law by which physicians are specifically recognized in any way. Obviously the fact that the new draft law takes in the manhood of the country up to 45 years of age means that either the law or the regulations will provide for the classification of industries, occupations and professions so that the man power of the country can be utilized to the best advantage for the winning of the war. The methods of utilizing the medical profession by our British allies takes care of the needs of the civilian as well as of the military population. Our own selective service law permits the inducting of a physician into the Army on the same basis as any other man. He is drafted not as a physician but as a civilian, and enters the Army as a private soldier in the ranks. Later he may be assigned to the Medical Department and, if qualified in every way, may finally obtain a commission in the Medical Department. Certainly in the future some method should be adopted by which this roundabout way can be avoided. In Great Britain the problem is worked out by the medical profession itself. There is no method under our present selective service by which this can be done, and we have no body similar to the Central Medical Committee and the Local Medical War Committees of Great Britain. These were created by the profession itself, with the cooperation of the British Medical Association, the Royal Colleges of England, etc., the insurance panels and the Medical Department of the Army being represented. As we have stated elsewhere, however, the details of the procedure will depend largely on the text of the law, and presumably will be worked out by the Offices of the Surgeon-General and Provost Marshal-General, through regulations.

SCIENCE AND HUMAN VIVISECTION

In Boston there is published an antivivisection journal by the freak name of *Living Tissue.* In its July number we find an editorial on the louse and trench fever. Referring to the experiments on human beings, the editor says: "This unanimity of survival [of the men experimented on] does not diminish the heroism with which they faced the doctors' syringes and unknown horrors. . . . There can be no disposition anywhere to detract from the heroism and sacrifice of these young men." Not a word of reprobation of human vivisection, either of the experiments on them or on those earlier heroes who were the means of discovering the relation of the mosquito to yellow fever. "Silence gives consent." But the editor, being a lawyer, knows all about yellow fever. He says, "It is entirely probable and reasonable that yellow fever would have been eradicated by sanitation in the Panama Canal Zone *without the elimination of the mosquito.*" And this is the stuff with which he feeds his readers.

POLLEN AND HAY-FEVER

Ever since "hay-fever" began to be regarded as a manifestation of an anaphylaxis-like hypersusceptibility of certain persons to the pollen of some plants, it has become important to recognize the specific product responsible for the attack that the sensitive subjects experience. Indeed, in all present-day consideration of the clinical significance of anaphylaxis, it is essential to detect the source of the allergic substance so that it can be removed, avoided or perhaps combated by a suitable immunization procedure. It is asserted that the hay-fever prevalent in Europe is dependent chiefly on a protein substance found in the pollen of most grasses, while that of America, which occurs chiefly in the autumn, is caused by the proteins of the pollen cells of the *Ambrosiaceae* and *Solidaginae* — plants that are generally distributed on the North American continent and bloom in August and September. The disease occurring in China is caused by another plant, the *Ligustrum vulgare*.[1] Attention has been called by a California botanist[2] to the observation that in the region of the United States west of the Rocky Mountains hay-fever may be produced by an almost entirely different flora from that which causes it in the Eastern States and in Europe, and that the exact species involved must be determined in each case before treatment for immunity is undertaken. This statement is the outcome of the discovery, among other features, that the spring type of hay-fever, which is very troublesome in the Sacramento Valley, is attributable to a walnut tree pollen. In the city of Colusa it was noted that the native California black walnut (*Juglans californica* var. *Hindsii* Jepson) was much used as a street tree, that the abundant pollen sifted down over the city just at the time when the disease was most prevalent, and that the disease disappeared soon after the close of the flowering period. It was also learned that when patients left the region temporarily to escape the disease they were free from the symptoms, except when passing through towns where the black walnut grew. Finally, the botanical characters of the pollen were exactly those which one would expect in a hay-fever plant. Since this evidence all pointed to the walnut as probably the chief offender, samples of the pollen were gathered and biologic tests were made with positive results. Similar observations were made elsewhere in the same region. Hall states that the treatment of numerous hay-fever subjects in the Sacramento and neighboring valleys to render them immune to hay-fever is now under way, and that the serums prepared from the black walnut pollen are the ones most used. It is expected that by this means the spring type of the malady can be largely eliminated in those districts. A more direct method would be to remove the trees, or, better yet, to graft the tops over to English walnut, which rarely, if ever, causes hay-fever. The assumption that tree pollens play only a minor rôle, if any, as causative factors in hay-fever must now, if we follow Hall, be abandoned. Perhaps more attention should be directed promptly to some of the Eastern forms.

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[1] Page 471.

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[1] Zinsser, Hans: Infection and Resistance, New York, 1914, p. 434.

[2] Hall, H. M.: Walnut Pollen as a Cause of Hay-Fever, Science, 1918, **47**, 516.

THE DESIRABILITY OF MAKING PNEUMONIA A NOTIFIABLE DISEASE

It is today more clearly recognized than ever before that there is an advantage in having all serious communicable diseases reported to the health authorities. For some time past, pneumonia has constituted one of the few exceptions to the general practice. In spite of the obvious difficulties in the way of requiring the early reporting of this disease, the effort would seem worth making, at any rate in all favorably situated communities. Owing to the interest in pneumonia in connection with its occurrence in the army camps, the present would appear an especially propitious time for putting pneumonia on the list with the other reportable diseases. Several sound arguments may be advanced in support of this proposal. The occasional occurrence of epidemics of pneumonia as sharply delineated as outbreaks of diphtheria or typhoid has long been known, but in recent years the nature of such epidemics has not often been subjected to investigation by modern methods. If all pneumonia cases were notifiable, material for epidemiologic study would become available and might reveal important relations. Again, observations by Stillman[1] and others have shown that pneumonia contacts are likely to harbor the same pneumococcus type as that found in the patient: if the case is due to Type I infection, the Type I and not Type II is likely to be found in the contacts. The bearing of this fact both on the mode of treatment and on the prevention of spread is obviously important. In instances in which pneumococcus typing is carried out, the occurrence of additional cases in the patient's environment may possess great epidemiologic significance. The experiences of last winter and spring in the army camps emphasize the desirability of keeping cases of pneumonia under surveillance. Apart from the evident necessity for distinguishing between various types of infection and modes of communication, there is the question of the wisdom of instituting at least a moderate system of isolation of pneumonia patients. Cole and MacCallum,[2] after studying pneumonia at the base hospital at San Antonio, Texas, concluded that a very large number of patients suffering from acute lobar pneumonia have hemolytic streptococci in their throats, and that "when infection is once started in a ward in which the patients are closely associated, the streptococci become widely distributed; they probably gain in virulence with repeated transfer through the human subject, and serious and widespread infection results." It cannot be said that a disease so widespread and so much influenced by predisposing factors as pneumonia is easy to control from the public health standpoint, and doubtless too much should not be expected from the notification of cases. At the same time, knowledge of the localization of previous cases, of their connection with other diseases, and of their relation to season, age, sex and industrial employment may afford some clue to methods for preventing the spread of the infection. Only experience can show whether isolation of patients, the use of face masks by attendants, more general hospitalization, and other possible protective measures will really prove efficacious in reducing the prevalence of pneumonia in civilian communities. In what way can information be obtained other than by putting promptly on record where and when cases of pneumonia develop?

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[1] Stillman: Jour. Exper. Med., 1917, **26**, 513.

[2] Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, The Journal A. M. A., April 20, 1918, p. 1146.

Meat and Habit.—The flavor of meat is such that it lends itself to the easy preparation of a palatable meal, but this flavor could undoubtedly be as well obtained if the present consumption of meat were cut in two. It is a question of habit; but with the present reduced supply of meat one must adopt new habits. It would be highly desirable if the grain now fed to fatten beef were given to maintain herds of milch cows.—Lusk, Food in War Time.

Medical Mobilization and the War

Number of Physicians Under 45 Years of Age

The records in our Biographical Department show that there are 75,498 physicians under 45 years of age licensed to practice medicine in the United States.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES FOR THE WEEK ENDED JULY 26, 1918

Compiled from Weekly Telegraphic Reports Received in the Office of the Surgeon-General

	This Week	Last Week
1. ANNUAL ADMISSION RATE PER 1,000 (disease only):		
All Troops	993.8	1,084.5
Divisional Camps	948.8	1,044.9
Cantonments	1,006.4	1,264.9
Departmental and Other Troops	889.5	913.6
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:		
All Troops	37.45	39.6
Divisional Camps	36.27	41.49
Cantonments	41.68	43.33
Departmental and Other Troops	33.27	34.7
3. ANNUAL DEATH RATE PER 1,000 (disease only):		
All Troops	2.12	2.9
Divisional Camps	1.25	2.33
Cantonments	2.90	3.61
Departmental and Other Troops	1.68	2.47

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending July 26, 1918	Departmental and Other Troops, Week Ending July 26, 1918	Divisional Camps, Week Ending July 26, 1918	Cantonments, Week Ending July 26, 1918	Expeditionary Forces, Week Ending July 18, 1918
Pneumonia	9.29	5.23	8.8	12.12	9.28
Dysentery	0.95	1.40	1.07	0.5	0.61
Malaria	5.69	2.33	9.7	6.81	0.66
Venereal	182.1	148.0	111.7	243.5	27.2
Paratyphoid	0.03	0.0	0.0	0.08	0.0
Typhoid	0.70	0.37	0.71	1.0	0.15
Measles	26.4	10.3	23.1	42.3	2.08
Meningitis	0.45	0.46	0.36	0.5	0.86
Scarlet fever	0.45	0.84	0.0	0.3	0.86

BRITISH DELEGATES TO ANNUAL SESSION PUBLISH REPORT

The London *Times* for July 15 contains the following letter from the official delegates of Great Britain to the annual session of the American Medical Association:

Sir:—Some months ago the American Medical Association forwarded to the British government a request that it should send representatives to attend their annual Medical Congress at Chicago. In response to this invitation, a mission was dispatched by the Ministry of Information. The mission has just returned to England.

The members gave addresses at all the principal meetings, and took an active part in the discussions. They also spoke at large public gatherings at twelve other towns in America and one in Canada, to audiences varying from 500 to 5,000, comprising members of the medical profession and important business and professional men.

The American recruiting authorities availed themselves of the opportunity to send representatives, who accompanied the mission, and appealed to the members of the medical profession to join the army. There were then 22,000 medical officers in the American Army, and during our visit 5,000 other medical volunteers came forward, until by June 22 the lists closed completely filled.

The mission visited the chief manufacturing establishments, which are devoting all their energy to the construction of ships of war of all sorts, merchant ships, aeroplanes and munitions. They also saw huge plants which had grown into splendid efficiency since the entrance of America into the war.

From these wide and varied sources the mission gathered the conviction that the American people have been thoroughly aroused, and are in entire agreement with Great Britain and her Allies. The business community have formed a clear conception of the magnitude of the task before them, and they are employing their unlimited resources of men and material to prepare for the coming ordeal.

At each public meeting the mission was asked to convey a message from the people of America to the people of Great Britain and her Allies to the effect that they are to be of good cheer; that America is with them whole-heartedly, and that she has thrown herself into the conflict with all her strength, with the firm determination to fight till victory is complete.

From the extreme cordiality of their reception by all classes of the community the commission feel justified in believing that bonds of sympathy between the nations have been materially strengthened by their visit.

JAMES MACKENZIE,
W. ARBUTHNOT LANE,
HERBERT A. BRUCE.

MILITARY MEDICAL CONSCRIPTION IN GREAT BRITAIN

Now that we are about to make practically the entire active man power of the United States subject to the order of the government it is of especial interest to note how Great Britain, following the passage of its most recent military service act, has dealt with the medical profession. That service act makes every man born in Great Britain who was not more than 51 years of age on April 18, 1918, liable to military service, but it extends the liability for physicians to 56 years of age, in both cases subject to physical fitness on medical examination. The Ministry of National Service, similar in organization to our selective service boards, may intimate to any man that he may be more usefully employed for the good of the nation in carrying on his occupation in a civilian capacity. It has, however, the power to tell him where he can most usefully carry on his occupation, and if he refuses without good cause, he may be inducted into the ranks of the army to serve in any capacity which the government thinks fit. In order to arrive at a just decision the person called up may apply to the board for a certificate of exemption based on either personal grounds: that he would suffer serious domestic or financial hardship, that he is ill or infirm, or that he has a conscientious objection to combatant service, or on the general grounds that it is inexpedient to the national interest that he should be taken from the work which he is doing. It is, of course, conceivable that a man might apply for exemption under both clauses. In the cases of medical men who apply for exemption the appeals would be heard before the tribunals constituted by the Central War Committee and the Scottish Medical Service Emergency Committee, or before the Committee of Reference. These tribunals may grant absolute, conditional or temporary exemption on the grounds of personal hardship, ill health or conscientious objection, but in the case of physicians, when the ground of exemption is occupation, only conditional exemption will be granted, the condition being that the physician, if not required for military service, shall give his services to the civilian community in such manner as the Ministry of National Service deems best.

A circular[1] sent out by the Central Medical War Committee to local medical war committees gives the actual procedure which will be carried out. This committee first ascertains the areas from which doctors should be spared. A notification will then be sent to medical men in the areas selected who will previously have been examined medically by special National Service medical boards. This notification will be accompanied by an intimation that they may exercise their right to apply for exemption. The physicians will also receive a "certificate of protection" which will render its possessor not liable to the attentions of the recruiting officer. The "certificate of protection" will entitle the physician to exemption until offered a commission, but in the meantime places him subject to the condition that he will undertake such professional work as may be offered to him. In other words, he is liable for any civilian professional work, but not liable until further hearing for military work. Thus acting on information supplied by the local committee, the central committee will secure the names of all medical men in any given district who are available for medical work either in the commissioned personnel of the Army or in a civilian capacity. From this list the local committee will select those who they think can be most easily spared. Those so selected, if not satisfied, may have a hearing before the central professional committee acting as an advisory body to the Ministry of National Service, but not as a statutory tribunal. A statutory hearing can be held only in case a practitioner refuses the "certificate of protection" and makes formal application to the tribunal for exemption within fourteen days after receiving notice from the ministry. The British Medical Journal Comments:

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[1] Medical Practitioners under the Military Service Act, Editorial, British Medical Journal, June 22, 1918, p. 701.

> "It is hoped that the method of procedure worked out by the Central Medical War Committee, in consultation with the medical department of the Ministry of National Service, will result in providing, with the least amount of inconvenience to the profession, a reserve of doctors known to be available either for military or civilian work; this reserve will be drawn upon if and when required. But the Ministry of National Service has stated that the probability is that most of the practitioners made liable under the new Military Service Act will in fact never be required to do anything but their own professional work in their own locality, and that where substitution is necessary the arrangements would in the majority of cases be local only, and would not entail the removal of the substitute from his own practice."

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in The Journal, June 1, 22 and 29, July 13, 20 and 27, and August 3.

ALABAMA

Mobile—Cowles, T. D.
Talladega—Thornton, W. L.

ARIZONA

Nogales—Smelker, V. A.

ARKANSAS

Batesville—Johnston, O. J. T.
Little Rock—Gray, W. K.

CALIFORNIA

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ORDERS TO OFFICERS OF THE MEDICAL CORPS; MEDICAL CORPS, NATIONAL ARMY; AND MEDICAL CORPS, NATIONAL GUARD

To Camp Crane, Allentown, Pa., for duty, from Williamsbridge, Col. DOUGLAS F. DUVAL.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Benjamin Harrison, Capt. JAMES H. BURNS.

To Camp Upton, L. I., N. Y., for duty, from Fort Hamilton, Lieuts. RANSOM S. ROBERTSON; from Fort Hancock, GEORGE E. G. NORTON; from Fort Howard, BERNARD O. THOMAS; from Fort Tilden, CHARLES F. McCARTY.

To Fort Douglas, Utah, for duty, from Camp Lewis, Lieut.-Col. EUGENE G. NORTHINGTON.

To Fort McPherson, Ga., for duty, from Fort Sam Houston, Major WILLIAM F. RICE.

To Fort Oglethorpe for instruction, Lieuts. JAMES F. COX, ORAMEL E. HANEY, ALVIN H. STANHOPE, HAROLD W. STANWOOD, E. C. A. STETSON, ARDENNE A. STOTT.

To Hoboken, N. J., for duty, from Camp Grant, Lieut.-Col. SAMUEL J. KOPETSKY.

To Syracuse, N. Y., as company surgeon, from Camp Grant, Major CHARLES R. CASTLEN.

To Williamsbridge, N. Y., for duty, from Hoboken, Lieut.-Col. WILLIAM L. SHEEP.

The following order has been revoked: *To Fort Dupont,* Delaware, for duty, from New York, Lieut.-Col. MARLBOROUGH C. WYETH.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Crane, Allentown, Pa., base hospital, from Camp Sheridan, Capt. JAMES L. BOWMAN, Union Springs.

To Camp Meade, Admiral, Md., base hospital, from Camp Sevier, Lieut. GILBERT A. RHODES, Troy.

To Camp Sherman, Chillicothe, Ohio, as assistant to camp surgeon, from Fort Oglethorpe, Major WILLIAM H. OATES, Mobile.

To Fort Oglethorpe for instruction, Capt. FRANK B. WILSON, Huntsville; Lieuts. CHARLES O. KING, Athens; CHALMERS H. MOORE, Birmingham.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Dick, Major KOSCIUSKO W. CONSTANTINE, Roebuck Springs.

Arizona

To Fort Oglethorpe for instruction, Capt. CHARLES A. THOMAS, Tucson; from Douglas, Lieut. WILLIS E. McWHIRT, Safford.

To Fort Riley for instruction, Capt. EDMISTON DARRAGH, Bisbee.

Arkansas

To Camp Cody, Deming, N. M., for duty, from El Paso, Lieut. WHEELER S. McCALL, Barfield.

To Camp Fremont, Palo Alto, Calif., base hospital, Lieut. THOMAS E. SANDERS, Hot Springs.

To Fort Riley for instruction, Lieut. ADONIS SMITH, Hope.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. JOHN C. SIMPSON, Hamberg.

California

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. BUDD ROBBINS, Hanford; PHILIP J. CUNNANE, Los Angeles.

To Camp Cody, Deming, N. H., base hospital, Lieut. OTTO H. MUELLER, Hollywood.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Capt. ARTHUR M. McINTOSH, Berkeley.

To Camp Fremont, Palo Alto, Calif., base hospital, Capts. THOMAS R. McNAB, Los Angeles; JEROME B. THOMAS, Palo Alto; EDWARD K. HOPKINS, San Francisco; Lieuts. ALLEN L. COHN, WILLARD E. KAY, JR., San Francisco; IRVING H. BETTS, Visalia. For duty, Capts. JAMES L. FLINT, Glendale; JOHN E. COLLORAN, CHARLES W. CRAIK, Los Angeles; ARTHUR F. BRADSHAW, Orange; Lieut. ROYAL R. BARONIDES, San Francisco.

To Camp Grant, Rockford, Ill., base hospital, from Fort Riley, Capt. ARTHUR M. McINTOSH, Berkeley; Lieut. JOSEPH K. SMITH, Bakersfield; from Fort Sill, Capt. THOMAS W. HOLMES, San Francisco.

To Camp Kearney, Linda Vista, Calif., base hospital, Capt. WALTER H. THORNE, Fresno; EDWARD W. BURKE, Redlands; HOWARD N. BROTHERS, JOHN WEHRLY, Santa Ana; WILLIAM E. BOZIER, Susanville.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Lewis, Capt. CHARLES E. SCHOFF, Davis. For duty, from Camp Fremont, Capt. JOSEPH H. CATTON, San Francisco; from Mineola, Lieut. JAMES DE ANGULO, Stanford University.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. ALBERT R. ROGERS, OSCAR V. SCHROETER, Los Angeles.

To Fort Oglethorpe for instruction, from Fort Riley, Lieut. WILLIS H. HALL, Orange.

To Fort Riley for instruction, Capts. JOHN F. HULL, Alhambra; THEOPHILUS C. ROBINSON, Long Beach; HENRY A. BARCLAY, San Diego; Lieuts. EDWIN R. HARVEY, AUBREY E. HENDERLITE, WALTER B. HILL, Long Beach; ARTHUR A. McCLURKIN, Los Angeles; SAMUEL A. MARSDEN, Orange; FRED S. RYAN, San Jose.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. JOSEPH K. SMITH, Bakersfield.

To Hoboken, N. J., base hospital, Capt. GEORGE G. HUNTER, Los Angeles; from Camp Crane, Lieut. FRED D. NORTHRUP, Pasadena.

To Mineola, L. I., N. Y., for instruction, from San Diego, Major WILLIAM R. REAM, San Diego.

To Morrison, Va., for duty, from Fort Riley, Lieut. BUDD ROBBINS, Hanford.

Canal Zone

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Major SURSE J. TAYLOR, Cristobal.

Colorado

To Azalea, N. C., as commanding officer, from Markleton, Major HENRY W. HOAGLAND, Colorado Springs.

To Camp Cody, Deming, N. M., base hospital, from Fort Sill, Major HARRY S. FINNEY, Denver.

To Camp Dodge, Des Moines, Iowa, base hospital, from Fort Oglethorpe, Lieut. MILTON A. BROEMSER, Holly. For duty, from Fort Riley, Capt. HARVEY E. HALL, La Junta.

To Camp Meade, Admiral, Md., base hospital, from Wiliamsbridge, Lieut. CHARLES S. PHALEN, Salida.

To Metuchen, N. J., for duty, from New Haven, Capt. WILBUR A. LITTLE, Canon City.

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To Fort Oglethorpe, for duty, from New York, Lieut. ARTHUR S. GRANT, Hartford. For instruction, Lieuts. WILLIAM F. REARDON, JOHN H. I. SWEET, JR., Hartford; PETER W. SKALDZIEN, Meriden.

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To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capt. GUY S. SAFFOLD, Washington.

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To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fairfield, Capt. CHARLES W. HYDE, Washington.

To Syracuse, N. Y., as sanitary inspector, from Fort Oglethorpe, Capt. JAMES S. HOUGH, Washington.

Florida

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Lieut. ROBERT F. McLEOD, Otter Creek.

To Fort Oglethorpe for instruction, Capt. LEON A. PEEK, West Palm Beach.

Georgia

To Camp Crane, Allentown, Pa., base hospital, from Camp Pike, Lieut. AUGUSTUS H. FRYE, Griffin; from Camp Wheeler, Capt. WILBORN A. UPCHURCH, Atlanta.

To Camp McClellan, Anniston, Ala., base hospital, Capt. MARVIN M. HEAD, Zebulon.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. WILLIAM R. DANCY, Savannah; Lieut. QUINNEY A. MULKEY, Millen; from Fort Oglethorpe, Lieut. WILLIAM F. JENKINS, Midland.

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To Fort Sill, Okla., for duty, from West Point, Mass., Lieut. ERNEST R. HARRIS, Bethlehem.

Idaho

To Camp Lewis, American Lake, Wash., base hospital, Capt. ELMER G. BRADDOCK, Lewiston.

To Camp Pike, Little Rock, Ark., for duty, from Fort Riley, Lieut. DEWITT P. HIGGS, Fairfield.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sherman, Lieut. CHARLES O. MOORE, Paris.

Illinois

To Camp Alfred Vail, Little Silver, N. J., for duty, from Fort Oglethorpe, Lieuts. DONALD E. MACGREGOR, JOHN T. O'CONNELL, Jr., Chicago.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. BENJAMIN E. FILLIS, Hubbard Woods. For duty, from Fort Riley, Capt. DANIEL B. HAYDEN, Lieuts. FREDERICK W. SLOBE, Chicago; HUGH I. CONN, Metcalf; from Jackson Barracks, Lieut. NEIL E. FUNK, Chicago. To examine the command for nervous and mental diseases, from Fort Screven, Lieut. WALTER C. COOK, Peoria.

To Camp Colt, Gettysburg, Pa., for duty, from Fort Oglethorpe, Lieut. HENRY SHACOFF, Chicago.

To Camp Crane, Allentown, Pa., base hospital, from Camp Pike, Capt. RAYMOND C. GILLOGLY, Newman; Lieut. CECIL J. JOHNSTON, Canton.

To Camp Grant, Rockford, Ill., base hospital, Capt. GEORGE McINTYRE, Chicago.

To Camp Custer, Battle Creek, Michigan, as assistant to division surgeon, from Fort Riley, Capt. EDWARD M. MIKKELSEN, Winnetka. Base hospital, Capt. EARL L. HENDRICKS, Lanark.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. HARRY L. SCHULTZ, Decatur. For duty, from Fort Oglethorpe, Lieuts. REUBEN C. HANCHETT, CLAUDE A. LINK, Chicago.

To Camp Kearney, Linda Vista, Calif., base hospital, from Fort Riley, Major JAMES F. PERCY, Galesburg.

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To Camp MacArthur, Waco, Texas, base hospital, Lieut. JAMES L. HAMMOND, Wilmette.

To Camp Meade, Admiral, Md., base hospital, from Camp MacArthur, Lieut. PHILIP ROSENBLUM, Chicago.

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To Camp Sevier, Greenville, S. C., base hospital, from Camp Jackson, Capt. THOMAS E. CHERRY, Cowden.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Riley, Capt. CHARLES R. LOCKWOOD, Kankakee.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieuts. JOHN H. MOORE, ITALO F. VOLINI, Chicago. To examine the command for nervous and mental diseases, from Jackson Barracks, Capt. WILSON K. DYER, Kankakee.

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To Camp Upton, L. I., N. Y., base hospital, Lieuts. JOHN F. W. ROST, Minier; HOMER E. VAN EPPS, Sterling.

To Canal Zone for duty, from Camp Grant, Lieut. WILLIAM H. GEHL, Chicago.

To Fort Oglethorpe for instruction, Capts. PHILIP C. W. JOHANNES, LEROY P. KUHN, HENRY SCOTT, Chicago; ARTHUR R. RIKLI, Naperville; FRANK O. RINGNELL, Rock Island; BENJAMIN F. HOCKMAN, Sumner; Lieuts. JUSTUS C. GARARD, GOLDER L. McWHORTER, CLIFFORD S. POWELL, Chicago; GUY L. McKINNEY, East Alton; ALBERT J. WEIRICK, Marseilles; ROSCOE W. McKINLEY, Monmouth; George H. WILSON, Mount Carmel; WALTER J. PRICE, Peoria; HORNER F. MOORE, ARTHUR PEARMAN, Rockford; CHARLES W. SEEVER, Sheldon; GEORGE T. MEACHAM, Taylorville; JOHN A. McGEE, Virginia; from Fort Riley, Lieuts. RICHARD F. GREENING, JOSEPH MOLES, SYLVIO A. SCIARETTA, Chicago.

To Fort Riley for instruction, Capts. TREVALE C. COGGESHALL, Henry; EUGENE P. SULLIVAN, Morrison; GEORGE H. COTTRALL, Savanna.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. WILLIAM RUPP, Chicago; from San Antonio, Lieuts. FRANCIS V. CARBERRY, Chicago; HARRY E. BROWN, Peoria.

To Hoboken, N. J., base hospital, from Camp Devens, Capt. ANSON LeR. NICKERSON, Momence; from Camp Meade, Lieut. LOUIS SAVITSKY, Cicero.

To Jefferson Barracks, Mo., for duty, from New Haven, Lieut. EMERY H. DUFOUR, Chicago.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from South San Antonio, Capt. EUGENE CARY, Chicago.

To Morrison, Va., for duty, from Fort Oglethorpe, Lieut. FRANK L. FORTELKA, Chicago; from Fort Riley, Lieut. FREDERICK W. SLOBE, Chicago.

To New Haven, Conn., for duty, Capts. ARTHUR C. KLEUTGEN, WALTER H. WATTERSON, Chicago.

To Newport News, Va., for duty, from Pittsburg, Lieut. ERNEST J. WORTHINGTON, Olney.

To Richmond, Va., Richmond and West Hampton Colleges, for duty, from Camp Custer, Capt. ALBERT B. KEYES, Chicago.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. LOUIS R. KRATZE, Chicago.

To Syracuse, N. Y., for duty, from Camp A. A. Humphreys, Lieut. LEON E. DALLWIG, Chicago.

To Williamsbridge, N. Y., for duty, from Camp Cody, Major WILLIAM FULLER, Chicago.

To report to the commanding general, Central Department, for assignment to duty, Capt. OTTO T. HANSON, Chicago.

Indiana

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. GEORGE H. VAN KIRK, Kentland; Lieut. OLIVER M. JOHNSON, Kokomo.

To Camp Dodge, Des Moines, Iowa, base hospital, from Fort Oglethorpe, Lieut. SAM W. HOOKE, Noblesville. For duty, from Fort Benjamin Harrison, Lieut. CHARLES J. COOK, Indianapolis; from Fort Snelling, Capt. ROSS B. BRETZ, Evansville.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. CHARLES BOSENBURY, South Bend; Lieut. LAW E. SOMERS, Craigville. For duty, Lieuts. ROSS A. COOPER, Carmel; MARVIN F. FISHER, Le Fontaine.

To Camp Lee, Petersburg, Va., base hospital, from Camp Hancock, Lieut. JOHN W. THOMSON, Garrett. For duty, Lieut. WALTER P. ROBINSON, Boonville.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CARL V. DAVISSON, West Lafayette.

To Camp Upton, L. I., N. Y., base hospital, Capt. ROLLO J. PEIRCE, Richmond.

To Cape May, N. J., for duty, Lieut. FREDERICK C. POTTER, Indianapolis.

To Fort Oglethorpe for instruction, Capts. JAMES W. BENHAM, Columbus; HERBERT A. RAY, MAURICE I. ROSENTHAL, Fort Wayne; DULANIA S. WIGGINS, New Castle; CHARLES C. DUBOIS, Warsaw; Lieuts. PERRY L. FERRY, Akron; ORRIS O. MELTON, Hammond.

To Fort Ontario, N. Y., base hospital, from Plattsburg Barracks, Major THOMAS B. C. KEENE, Indianapolis.

To Fort Riley for instruction, Capts. VERNON C. PATTON, ROLAND A. WILTSHIRE, Morristown; ROBERT A. CUSHMAN, Princeton; MARC F. HUNN, Shipshowanam; Lieuts. EARL J. CRIPE, Atwood; LEON E. WETSELL, Bloomington; ROBERT W. HAWKINS, Brazil; PAUL C. GRAHAM, Columbus; EDMUND C. GRAY, Greensburg; FRANCIS H. RILEY, Linnsburg; WALTER S. GIVEN, MARTIN E. PATTON, Indianapolis; HERMAN S. BOWLES, Muncie; SILVA I. GREEN, St. Bernier; CLAUDE S. BLACK, Warren; CLARENCE E. BOYD, West Baden; VIERL C. GRIFFIS, Williamsburg.

To Mineola, L. I., N. Y., for instruction, from Austin, Texas, Lieut. BYRON J. PETERS, Kokomo.

To New Haven, Conn., for duty, Capt. MALCOLM L. SAMMS, Batesville.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Upton, L. I., N. Y.,* base hospital, Lieut. HARRY E. GOWLAND, Valparaiso.

Iowa

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieut. CHAS. E. BLOCK, Davenport.

To Camp Dodge, Des Moines, Ia., base hospital, Capt. CHARLES S. JAMES, Centerville; Lieut. CHANNING G. SMITH, Granger. For duty, from Fort Riley, Lieuts. ALBERT J. CHARLTON, Lowden; from Fort Sheridan, Lieut. EDWARD A. COUPER, Britt.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. WALTER W. MURPHY, Lewis.

To Camp Grant, Rockford, Ill., base hospital, Lieut. HARVEY RANSOM, Des Moines.

To Camp Lee, Petersburg, Va., base hospital, from Camp Greene, Lieut. FRED W. NIEHAUS, McClelland. For duty, from Fort Oglethorpe, Lieut. GEORGE S. BAWDEN, Davenport.

To Camp MacArthur, Waco, Texas, base hospital, Capt. EVAN S. EVANS, Grinnell; Lieuts. GEORGE BRAUNLICH, Davenport; ALBERT D. SMITH, Mason City; WINFIELD M. WHITE, Sioux City. For duty, Lieut. LELAND O. CAREY, Des Moines; from Fort Riley, Lieut. LAURELL LAV. LUGAR, Corydon.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Capt. MEREDITH B. MURRAY, Macedonia.

To Camp Meade, Admiral. Md., base hospital, from Camp Lee, Lieut. ERWIN J. GOTTSCH, Le Mars.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sherman, Capt. RANSOM D. BERNARD, Clarion.

To Camp Sheridan, Montgomery, Ala., to examine the troops for tuberculosis, from Camp Joseph E. Johnston, Capt. EDWIN S. GILLESPIE, Wenona.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. GEORGE W. KOCH, Sioux City.

To Fort Oglethorpe for instruction, Lieut. LLOYD T. REED, Gravity; from Fort Riley, Lieut. AUDLEY E. NELSON, Sidney.

To Fort Riley for instruction, Capt. HENRY J. TALBOY, Onawa; Lieuts. CHARLES M. HAZARD, Arlington; HARRY R. SECOY, Sioux City; HUGH S. DETCHON, Victor; MERRITT N. GERNSEY, Waverly.

Kansas

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Camp Lee, Capt. JOHN F. RUDOLPH, Belle Plaine.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. JOHN R. CAMPBELL, Coats.

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Capts. HARRY L. CHAMBERS, Lawrence; HERBERT ATKINS, Pratt.

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Leeavenworth, Lieut. WILLIAM H. GREIDER, Topeka.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. ROBERT B. STEWART, Topeka.

To Camp Lewis, American Lake, Wash., as assistant to division surgeon, from Fort Riley, Lieut. CHESTER O. SHEPARD, Independence.

To Fort Logan H. Roots, Ark., base hospital, Lieut. FRED G. POULTRE, Horton.

To Fort Oglethorpe for instruction, Lieut. CHESTER H. SMITH, Pittsburg.

To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. JOSEPH C. SHAW, Holton. For instruction, Capts. CLARENCE E. BOUDREAU, Eldorado; GEORGE C. MAHAFFY, Ottawa; Lieuts. NOBLE E. NAYLOR, Centropolis; EARL G. PADFIELD, Salino.

To Fort Worth, Texas, for duty, from Fort Sam Houston, Lieut. ORVILLE O. MOORE, Topeka.

To New York City, Neurological Institute, for instruction, Lieut. ALDEN L. CRITTENDEN, Wichita.

Kentucky

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Capt. EDWARD C. BARLOW, Georgetown.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Lewis, Lieut. STANLEY E. STROUBE, Edgoten.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Sevier, Lieut. JAMES M. STAUGHTON, Covington.

To Camp Grant, Rockford, Ill., base hospital, from Camp Sherman, Lieut. CHARLES E. VIDT, Russell.

To Camp Greene, Charlotte, N. C., base hospital, Capt. JOHN T. BROWN, Paris.

To Camp Lee, Petersburg, Va., for duty, from Camp Sevier, Lieut. RICHARD R. SNOWDEN, Ravenna.

To Camp Sevier, Greenville, S. C., base hospital, from Walter Reed General Hospital, Major JOSEPH G. SHERRILL, Louisville.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Gordon, Lieut. JOHN W. DYER, Louisville.

To Canal Zone, for duty, from Southern Department, Capt. JETHRA HANCOCK, Louisville.

To Fort Benjamin Harrison, base hospital, Capt. JAMES A. ORR, Paris.

To Fort Oglethorpe for instruction, Capts. [illegible] Blaine; JASPER F. BRYANT, Corbin; JOHN I [illegible] Thomas; AUSTIN BELL, Hopkinsville; SAM [illegible] Louisville; DAVID J. WILLIAMS, Richmond; Lieuts. HENRY [illegible] SLATON, Greenville; HARRY G. HERRING, JOHN S. McGINNIS, Lexington; JAMES R. COTTELL, Louisville; BURTON A. WASHBURN, Paducah; CHARLES B. BARD, Water Valley; ISAAC H. BROWNE, HOWARD LYON, Winchester.

Louisiana

To Camp Lee, Petersburg, Va., base hospital, Lieut. THOMAS LATICLAIS, New Orleans.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Lieut. JOEL A. WILKINSON, Homer.

To Fort McHenry, Md., base hospital, Lieuts. HAROLD J. GONDOLF, New Orleans; from Camp Jackson, JOSEPH C. MENENDEZ, New Orleans.

To Fort Oglethorpe for instruction, Lieut. PAUL T. THIBODEAUX, Donaldsonville.

To Newport News, Va., for duty, from Colgate Creek, Lieut. ERASTUS L. MILLER, Longville.

Maine

To Fort Oglethorpe for instruction, Lieuts. HERBERT L. LOMBARD, Bridgton; LESTER H. TRUFANT, Norway.

To New Haven, Conn., for duty, Capt. CARL R. O'BRIEN, Bangor.

Maryland

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp MacArthur, Capt. RASTUS R. NORRIS, Crisfield.

To Lakewood, N. J., for duty, from Camp Wheeler, Lieut. JOHN T. KING, Jr., Baltimore.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. MORLEY D. McNEAL, Baltimore.

To Camp Jackson, Columbia, S. C., for duty, Lieut. BRYANT E. HARRELL, Baltimore.

To Camp Meade, Admiral, Md., base hospital, Capt. STANDISH McGLEARY, Baltimore.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. BERTRAM J. SANGER, Baltimore.

To Camp Upton, L. I., N. Y., for duty, from Fort Howard, Capt. FIRMADGE K. NICHOLS, Baltimore; from Rochester, N. Y., Lieut. SAMUEL J. PRICE, Queenstown.

To Cape May, N. J., for temporary duty, Capt. LEE COHEN, Baltimore.

To Fort [illegible]n, Capts. HARRY W. GADDES, HENRY [illegible] Lieuts. HARRIS C. BARROWS, Augusta; [illegible] JOHN H. BAIRD, LEO BRADY, WALTER [illegible] S. MOISE, CARL C. NOHE, JOSEPH [illegible] H. STANSBURY, Baltimore; EARNEST L. SCHAIBLE, Cary; GEORGE B. LYNCH, Hillsdale.

To Lakewood, N. J., for duty, Lieuts. WILLIAM L. BROSIUS, Jr., CLAUDE V. McMEEN, Baltimore; from Fort Oglethorpe, Lieut. HARRY L. ROGERS, Baltimore.

To Otisville, N. Y., for duty, from New Haven, Lieut. WILLIAM B. DAVIDSON, ALBERT EISENBERG, Baltimore.

To Syracuse, N. Y., for duty, from Camp Meade, Capt. HENRY N. SISCO, Baltimore.

To Washington, D. C., for duty in the Surgeon-General's Office, Major JOHN HOWLAND, Baltimore.

Massachusetts

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, and on completion *to his proper station*, Capt. ERNEST B. YOUNG, Boston.

To Camp Abraham Eustis, Lee Hall, Va., Camp Hospital, from Camp Meade, Lieut. EZEKIEL PRATT, Arlington.

To Camp Devens, Ayer, Mass., base hospital, Capts. CHARLES S. CAPELLE, ROBERT H. VOSS, Boston; EDWARD J. HUSSEY, Holyoke; ROBERT G. LORING, Lincoln; JOHN T. McGILLICUDDY, Worcester; Lieuts. EDWARD J. BREARTON, Boston; FREDERICK E. WITHEE, Highlands. For duty, from Army Medical School, Lieut. CHARLES W. PEABODY, Boston.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. DANIEL C. DENNETT, Winchester; Lieuts. THOMAS J. NORTON, Pittsfield; FRANK J. QUIST, Worcester.

To Camp Dodge, Des Moines, Iowa, base hospital, from the Surgeon-General's office, Major ALEXANDER S. BEGG, Boston.

To Camp Gordon, Atlanta, Ga., for duty, Lieut. WALTER J. DONOVAN, Springfield, from Camp Sevier, Capt. WILLIAM C. SHEEHY, New Bedford.

To Camp Lee, Petersburg, Va., base hospital, Capt. FREEMAN H. HIBBON, Brookline.

To Camp Meade, Admiral, Md., base hospital, from Williamsbridge, Lieut. THOMAS W. WICKHAM, Boston.

To Camp Sheridan, Montgomery, Ala., as camp psychiatrist, from Camp Sherman, Capt. HENRY L. STICK, Baldewinville.

To Camp Upton, L. I., N. Y., base hospital, Capt. RICHARD HINCHEY, Waltham.

To Fort Oglethorpe for duty, from New York, Lieut. WHITMAN K. COFFIN, West Medford. For instruction, Capts. WILLIAM G. TURNER, [illegible] D H. ALLEN, Holyoke; WILMARTH Y. [illegible] Lieuts. HERBERT G. ROCKWELL, [illegible] SWAN, Beverly; LOUIS GORDON, Boston; JOSEPH L. MARA, Brockton; MARSHALL L. ALLING, Lowell; CHARLES L. HOITT, Lynn; FRANKLIN P. LOWRY, Newton; MICHAEL E. COONEY, Northampton; HARRIS S. POMEROY, Peabody.

To Metuchen, N. J., for duty, Capt. THOMAS COX, Fall River.

To New Haven, Conn., for duty, Capt. HENRY F. R. WATTS, Roxbury. *To Yale Army Laboratory School*, for instruction Lieut. DAVID S. DOOMAN, South Ashfield. For temporary duty, from Camp A. A. Humphreys, Lieut. FRANK B. BERRY, Cambridge.

To Rockefeller Institute, for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. LEON C. HAVENS, Cambridge. For instruction in the treatment of infected wounds, and on completion *to Camp Meade*, Admiral, Md., base hospital, Lieut. GEORGE F. H. BOWERS, Worcester. On completion to Camp Sevier, Greenville, S. C., base hospital, Lieut. MATTHEW P. MAHONEY, Lowell. On completion *to Camp Upton, L. I., N. Y.*, base hospital, Capt. [illegible] Charlestown. On completion *to Camp Wadsw*[illegible], base hospital, Lieut. CARL A. SCHILLAND [illegible]

To Syracuse, N. Y., for duty, Capt. CHARLES B. STEVENS, Worcester; from Camp Devens, Lieut. EDWARD A. ADAMS, Newton.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. ADOLPHUS D. ROOD, Whitman.

To Washington, D. C., for duty in the Surgeon-General's Office, Capt. HARRY A. BARNES, Boston; from Camp Devens, Major WALTER B. LANCASTER, Boston; from Walter Reed General Hospital, Capt. FRANK B. GRANGER, Boston.

To Williamsbridge, N. Y., for duty, Capt. GEORGE L. GABLER, Holyoke; Lieut. HENRY J. LUPIEN, Brockton.

Michigan

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. IRA D. McCOY, Cass City.

To Camp Devens, Ayer, Mass., base hospital, from Rockefeller Institute, Major ROY B. CANFIELD, Ann Arbor; Lieut. GLENN B. CARPENTER, Detroit.

To Camp Meade, Admiral, Md., base hospital, *from* Camp Custer, Lieut. DAUNE W. CRANKSHAW, Lawrence.

To Fort Oglethorpe for instruction, Capts. CONRAD GEORGE, Jr., Ann Arbor; WALTER T. PARKER, Corunna; CLARENCE E. SIMPSON, Detroit; Lieuts. FRED M. ROHOW, Bessemer; ARTHUR M. THOMPSON, Grand Rapids; WILLIAM C. GIBSON, Petosky; GEORGE M. KESL, Port Huron.

To Fort Riley and *Fort Leavenworth, Kan.*, *Scott Field*, Bellevue, Ill., *Fort Reno* and *Fort Sill, Okla.*, and *Call Field*, Wichita Falls, Texas, for duty, Lieut. WILLIAM R. CHYNOWETH, Battle Creek.

To Hoboken, N. J., for duty, from Camp Upton, Lieut. LEO J. DRETZKA, Detroit.

To Metuchen, N. J., for duty, Capt. WALTER H. BOSTWICK, Algonac; Lieut. GUY C. CONKLE, Boyne Falls.

To Rockefeller Institute for instruction in the treatment of infected wounds, from New York City, Major ROY B. CANFIELD, Ann Arbor.

To report by wire to the commanding general, Central Department, for asigunment to duty, Capt. ARTHUR D. HOLMES, Detroit.

To the inactive list, from Hoboken, Major UDO J. WILE, Ann Arbor.

Minnesota

To Camp Cody, Deming, N. M., for duty, from Fort Sam Houston, Lieut. ALBERT M. LARSON, Jasper.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Snelling, Lieut. THOMAS F. RODWELL, White Earth.

To Camp Jackson, Columbia, S. C., base hospital, *from Camp Grant*, Capt. CHARLES R. BALL, St. Paul.

[illegible] Va., base hospital, from Fort Riley, [illegible] Minneapolis. For duty, Lieut. CHARLES [illegible]

To Camp [illegible]co, Texas, for duty, from Fort Riley, Capt. PAUL E. KENYON, Wadena.

[illegible] Chillicothe, Ohio, for duty, Lieut. ROBERT O. [illegible] from Fort Riley, Lieut. GILBERT HENDERICKSON, Lewiston.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Sill, Lieut. HENRY I. TWISS, St. Paul.

To Fort Oglethorpe for instruction, Lieut. SELMER M. JOHNSON, Buhl.

To Fort Riley for instruction, Capt. JAMES L. MILLER, Breckenridge; Lieuts. MORTON P. MORSE, LeRoy; AUSTIN VAN B. DENMAN, Mankato; FERDINAND G. BENN, Minneapolis; JOSEPH FINBERG, SHERMAN S. HESSELGRAVE, St. Paul.

Mississippi

To Buffalo, I [illegible] for duty, from Fort Oglethorpe, Lieut. [illegible]

To Camp A [illegible] Va., base hospital, Capt. THOMAS J. I [illegible]

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. WENDALL H. WILLIAMS, Tunica.

To Camp Grant, Rockford, Ill., base hospital, from New York City, Major JOHN W. BARKSDALE, Winona.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. MONTIEZUMA PORTER, Water Valley.

To Camp Jackson, Columbia, S. C., for duty, Lieut. JULIAN T. BAILEY, Meridian.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Sheridan, Lieut. [illegible] Corinth.

To Camp [illegible], Ala., to examine the command for nervous and [illegible] diseases, from Jackson Barracks, Lieut. THOMAS G. CLEVELAND, Meridian.

To Camp Wheeler, Macon, Ga., base hospital, Capt. EUGENE G. DENSON, Meridian.

To Fort Oglethorpe for instruction, Capts. ROBERT M. BUTLER, Jackson; WALTER P. GRAY, Waynesboro; Lieuts. OSCAR O. JONES, Booneville; JAMES I. WOODWARD, Picayune; BIRD H. HIGDON, Sunflower.

Missouri

To Camp Cody, Deming, N. M., base hospital, Lieut. ERNEST B. RIDER, Kansas City. For temporary duty, from St. Louis, Major EUGENE L. OPIE, St. Louis.

To Camp Crane, Allentown, Pa., for duty, from Fort McHenry, Major WILLIAM E. LEIGHTON, St. Louis.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Lakewood, Lieut. GREENE D. McCALL, Fulton. For duty, from Fort Oglethorpe, Lieut. GERHARD KAEMMERLING, Joplin.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. FRANCIS J. PFEFFER, St. Louis; from Army Medical School, Capt. McDOWELL BOTTS, Mexico. For duty, Lieut. HENRY W. MEISCH, Manchester.

To Camp Grant, Rockford, Ill., base hospital, Lieut. ELZA L. JOHNSTON, Waverly

To Camp Jackson, Columbus, S. C., base hospital, from Fort Oglethorpe, Capt. FRANK L. BIGSBY, Kirksville. For duty, Lieut. COMMODORE E. BENNETT, Joplin.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Jackson, Lieut. CLARE J. CLAPSADDLE, St. Louis.

To Camp Las Casas, San Juan, P. R., base hospital, from Fort Sill, Lieut. JAMES L. DOWNING, Oak Grove.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Lieut. MADISON J. PULLIAM, St. Louis.

To Camp Meade, Admiral, Md., base hospital, from Walter Reed General Hospital, Capt. WALTER C. G. KIRCHNER, St. Louis.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. CHARLES A. LEAVY, St. Louis.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. CHARLES H. ALTHEIDE, St. Louis.

To Fort Oglethorpe for instruction, Capts. CYRUS D. CANTRELL, FRITZ J. MOENNIGHOFF, Kansas City; WILSON J. FERGUSON, Sedalia; JOHN McH. DEAN, GEORGE A. MELLIES, St. Louis; Lieuts. CHARLES H. NEWCOMB, Clinton; ROSS H. UNDERWOOD, Kansas City; JOHN D. MOULDER, Linn Creek; EDWARD S. MURPHY, St. Louis; from Fort Riley, Lieut. WILLIAM B. INMAN, St. Louis.

To Fort Riley for instruction, Major MAX A. GOLDSTEIN, St. Louis; Capts. VINCIL B. JANES, Cameron; EZEKIEL M. BARTLETT, Clarksville; JOHN FLOYD KOOGLER, Kansas City; WILLIAM E. WALKER, La Monte; WILLIAM E. RUDD, Salem; FRANK R. MORLEY, Sedalia; EDWIN C. HILL, Smithville; HERMAN A. HANSER, St. Louis; Lieuts. CHARLES H. McHAFFIO, Ash Grove; LESLIE B. MILLER, Kansas City; JOSEPH W. MILLS, Owensville; EDWARD F. HIGDON, St. Joseph.

To Mineola, L. I., N. Y., for duty, from Houston, Capt. THEODORE S. BLAKESLEY, Kansas City.

To Morrison, Va., for duty, from Fort Riley, Lieut. FLOYD B. RICKETTS, Leslie.

To New Haven, Conn., Yale Army Laboratory School, for instruction in bacteriology, Lieut. ELBERT V. KRING, St. Louis.

To Newport News, Va., for duty, from Fort Monroe, Lieut. ALOIS E. TUREK, St. Louis.

To New York City, Neurological Institute, for instruction, Lieuts. CHARLES B. HYNDMAN, St. Louis.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Zachary Taylor, Lieut. PATRICK McGENNIS, St. Louis.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army School* for duty, Lieut. OSCAR F. BRADFORD, Columbia. For instruction in the treatment of infected wounds, and on completion *to Camp Dix,* Wrightstown, N. J., base hospital, Capt. WALTER U. KENNEDY, St. Louis.

To St. Louis, Mo., Signal Corps Aviation School, for duty, Lieut. JESSE J. BURDICK, St. Louis.

To Syracuse, N. Y., for duty, from Camp Dodge, Lieut. GEORGE H. MORELAND, Kansas City.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. WILLIAM P. DYSART, Columbia; Lieut. ARTHUR J. DECKER, Gray Ridge.

Montana

To Camp Lewis, American Lake, Washington, base hospital, Capt. EDGAR F. DODDS, Missoula.

To Fort Logan H. Roots, Ark., base hospital, Lieut. HUGH A. MacMILLAN, Dillon.

To Fort Oglethorpe for instruction, from Fort Riley, Lieut. CHARLES A. GARDNER, Columbus.

Nebraska

To Camp Crane, Allentown, Pa., base hospital, from Camp Pike, Capt. WILBER K. RILEY, Wisner.

To Camp Lee, Petersburg, Va., for duty, Capt. SETH E. RAGAN, Seward.

To Camp Sevier, Greenville, S. C., base hospital, from Walter Reed General Hospital, Capt. JAMES S. TAYLOR, Steele City.

To Fort Oglethorpe for instruction, Majors SAMUEL R. HOPKINS, Hastings; ALVA S. PINTO, Omaha; Capt. GROVE H. RATHBUN, Fremont; Lieut. ERNEST G. KIECK, Springfield.

To Fort Riley for instruction, Capt. HARVEY L. STARKEY, Wood River; Lieuts. LEE A. N. DELANNEY, Belgrade; THOMAS J. VANDERHOEF, Rising City.

To Mineola, L. I., N. Y., for duty, from Lonoke, Ark., Capt. CLAUDE T. UREN, Omaha.

To New Haven, Conn., for duty, Capt. LOUIS S. B. ROBINSON, Lincoln.

To Syracuse, N. Y., for duty, from Camp Dodge, Capt. JOSEPH A. HENSKE, Omaha.

New Hampshire

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Perry, Capt. JOHN B. WARDEN, Whitefield.

To Camp Sevier, Greenville, S. C., base hospital, from Jefferson Barracks, Lieut. WALTER L. BARBOUR, Colebrook.

To Camp Pike, Little Rock, Ark., for duty, from Fort Snelling, Major AMOS C. STRAW, Manchester.

To Fort Oglethorpe for instruction, Lieut. EZRA A. JONES, Manchester.

New Jersey

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. FREDERICK H. MORRISON, Newton.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JOHN A. HOLLAND, Montclair.

To Camp Grant, Rockford, Ill., base hospital, from Camp Wheeler, Capt. ALBERT N. JACOB, Sparta.

To Camp Jackson, Columbia, S. C., for duty, Capt. SAMUEL H. SULOUFF, Jersey City.

To Camp Kearney, Linda Vista, Calif., with the board examining the command for tuberculosis, from Fort Riley, Major RICHARD BEW, Atlantic City.

To Camp Lee, Petersburg, Va., for duty, Capt. WILLIAM S. FOSTER, Newark.

To Fort Logan H. Roots, Ark., base hospital, Capt. FRANK F. McDEDE, Paterson.

To Fort Oglethorpe for instruction, Capts. JOSEPH L. FEWSMITH, ALBERT S. HARDEN, Newark; RAYMOND DeW. BAKER, Summitt; Lieuts. JOHN B. BOYD, Farmingdale; THOMAS H. LEGGETT, Jr., Plainfield; WILLIAM G. McCORMACK, Whippany.

To South Baltimore, Md., for duty, from Fort Monroe, Lieut. PAUL O'BRIEN, East Rutherford.

To Syracuse, N. Y., for duty, from *Fort Ontario,* Major ARTHUR E. THOMPSON, East Orange; Capt. MAXWELL G. KEELER, Weewauken.

New Mexico

To Fort Riley for instruction, Lieuts. MARCELLUS McCREARY, Magdalena; JAMES R. DAVIS, Silver City.

To Mineola, L. I., N. Y., for duty, from Fort Sill, Capt. GEORGE D. CARTER, Mesilla Park.

New York

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. GRANT C. MEDILL, Ogdensburg. With the board examining troops for cardiovascular diseases, Lieut. ARTHUR E. NEERGAARD, New York; from Lakewood, Lieut. DANIEL SCHULTHEIS, New York.

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Camp Lee, Capt. ERWIN G. MACFARLAND, Clinton; from Camp Meade, Lieut. L. EVERLOF, Brooklyn.

To Camp Beauregard, Alexandria, La., as orthopedic surgeon, from Hoboken, Lieut. LOUIS F. CRASSON, Brooklyn.

To Camp Cody, Deming, N. M., for duty, from San Benito, Lieut. WILLIAM H. CHAPMAN, Brooklyn.

To Camp Colt, Gettysburg, Pa., for duty, from Fort DuPont, Lieut. MERLE Q. HOWARD, New York.

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Major BRUCE G. PHILLIPS, Capt. MATTHEW L. CARR, New York; Lieut. ROY I. MARSHALL, Rome. For duty, from Fort Oglethorpe, Lieut. HERMAN E. GAK, South Onondaga.

To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, Capt. JULIUS E. HAIGHT, Beacon.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. EDWARD R. WARE, JOHN J. YOUNG, New York; from Rockefeller Institute, Capt. FRANK G. SCHAIBLE, New York.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. HERBERT E. SPERRY, Rochester. For duty, Lieuts. ARTHUR C. GLOVER, Buffalo; WALTER B. HILLMAN, Greece; from duty as a private, Lieut. JOSEPH A. RAPPEPORT, Brooklyn.

To Camp Grant, Rockford, Ill., base hospital, from Army Medical School, Lieut. WILLIAM L. McCANTY, Buffalo. For duty, from Camp Jackson, Capt. PHILIP S. POTTER, Syracuse.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. MEYER R. LEVINE, Brooklyn.

To Camp Jackson, Columbia, S. C., for duty, Lieut. JAMES E. SHORT, Buffalo.

To Camp Lee, Petersburg, Va., base hospital, Capt. TASKER HOWARD, Brooklyn.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, *Lieuts. JULIUS M. BLANK, Brooklyn; ABRAHAM LEBENDIG,* Rochester.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Oglethorpe, Lieut. FLOYD F. BREESE, Elmira.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Lieut. ROBERT F. McDONALD, New York; from New York, Capt. ARTHUR F. HOLDING, New York. For duty, from Fort Oglethorpe, Lieut. SIDNEY P. LEVEY, New York.

To Camp Meade, Admiral, Md., base hospital, Lieut. JOSEPH GRABENSTEIN, Syracuse.

To Camp Sevier, Greenville, S. C., *base hospital, from Camp Custer,* Capt. WILLIAM B. REID, Rome.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Devens, Major LEWIS T. GRIFFITH, New York.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. RICHARD W. MORIARITY, New York; *from* Camp Custer, Capt. JULIUS E. HAIGHT, Beacon.

To Camp Upton, L. I., N. Y., for duty, from Fort Totten, Capt. FLOYD W. HUNTER, Fort Totten. To examine the command for nervous and mental diseases, from Camp Devens, Capt. GEORGE A. SHARP, *Beacon; from duty as a private,* Lieut. ABRAHAM T. GOLDSTEIN, Syracuse.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. CHARLES E. PERKINS, New York. For duty, from Eastern Department, Capt. CLARENCE A. READ, New Rochelle; Lieut. BENJAMIN Brodie, New York.

To Canal Zone for duty, Capt. EDGAR T. RAY, New York; from Camp Sevier, Lieut. LEO EDELMAN, New York.

To Fort Des Moines, Ia., base hospital, from Fort Oglethorpe, Lieut. HARRY WRONKER, Rochester.

To Fort Leavenworth, Kan., for temporary duty, Major HERMAN M. ADLER, Keene Valley.

To Fort McHenry, Md., for duty, from Williamsbridge, Capts. HERBERT R. CHARLTON, Bronxville; WALTER S. WOODRUFF, Mount Vernon.

To Fort Oglethorpe for instruction, Capts. FRANCIS E. O'BRIEN, Auburn; WILLIAM NEUSS, Brooklyn; CHAUNCEY W. GROVE, Geneva; SAMUEL T. HUBBARD, New York; GARROTT VAN DER V. JOHNSON, Schenectady; WILLIAM N. MALONEY, Three Mile Bay; Lieuts. JULIUS B. BOEHM, JOHN H. BURKE, BENJAMIN M. EIS, SAMUEL WEISS, Brooklyn; RAYMOND G. LAPORT, Buffalo; HALLEY W. HAMMOND, Franklinville; CLARENCE L. FESSENDEN, Fulton; GUILFORD S. DUDLEY, HENRY C. FALK, HAROLD GLUCK, SAMUEL KULKIN, HARRY S. MARCLAY, GASTANO J. MECCA, New York; FRANKLIN A. KNOPE, Rochester; WALTER V. FLEMING, Syracuse; from Williamsbridge, Lieut. FREDERICK C. KELLER, New York.

To Fort Worth, Texas, for duty, from Fort Sill, Capt. PHILIP E. ROSSITER, Brooklyn.

To Lakewood, N. J., for duty, from Camp Sheridan, Major GEORGE P. COOPERNAIL, Bedford.

To Long Island City, L. I., N. Y., for duty, from Fort *Oglethorpe,* Capt. A. L. BENEDICT, Buffalo.

To Metuchen, N. J., for duty, Capt. JOHN B. LEDLIE, Saratoga Springs; from Fort Oglethorpe, Lieuts. EDWARD A. TWIST, Long Island City; AARON WEINBERG, New York.

To Mineola, L. I., N. Y., Signal Corps Aviation School, *for* duty, from Fairfield, Capt. EDWIN S. INGERSOLL, Rochester. For instruction, from Detroit, Capt. SAMUEL A. MUNFORD, Ithaca.

To New Haven, Conn., for duty, *Capt.* FREDERICK A. JOHNSON, Lieut. BERNARD C. BULLEN, New York; Lieuts. JAMES A. BRADBROOK, East Williamson; EDWARD H. GANLEY, New York. Yale Army Laboratory, for instruction, Lieut. CHARLES H. HOCHMAN, New York. For instruction in bacteriology, Capt. WILLIAM A. GROAT, Syracuse; Lieuts. ABRAHAM SCHULTZ, Brooklyn; STANLEY T. FORTUNE, New York.

To Newport News, Va., for duty, from Camp A. A. Humphreys, Lieut. DAVID PASHMAN, Brooklyn.

To New York City, Bellevue Hospital, for instruction, and *on* completion *to Camp Devens,* Ayer, *Mass.,* base hospital, Lieut. ELMER A. CLARKE, Buffalo. On completion *to Camp Dix,* Wrightstown, N. J., base hospital, Capt. HARRY S. CAMPBELL, Otto. On completion *to Walter Reed General Hospital,* Tacoma Park, D. C., for duty, Lieut. CHARLES C. STEINHAUSER, Rochester.

To Otisville, N. Y., for duty, from New Haven, Lieut. JAMES H. STYGALL, New Bridge.

To Syracuse, N. Y., for duty, Lieuts. JOSEPH M. L. BRUNO, Brooklyn; BURKE C. HAMILTON, Goshen; from Camp Jackson, Lieuts. MAXWELL M. BOOXBAUM, HARRY F. GOCKLEY, New York; from Camp Meade, Capt. ELISHA W. BROWN, Mount Kisco.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. DAVID M. BLOOM, New York. For observation and treatment, from Philadelphia, Capt. CHARLES E. E. PANNACI, Gloversville.

To Williamsbridge, N. Y., for duty, from Camp Custer, Lieut. EDWARD J. HYLAND, Jamaica.

North Carolina

To Camp Lee, Petersburg, Va., base hospital, from Fort McPherson, Major CHARLES S. LAWRENCE, Winston-Salem.

To Camp Sheridan, Montgomery, Ala., for duty, from duty as an enlisted man, Lieut. NORMAN G. WILLIAMS, Franklin.

To Fort Oglethorpe for instruction, Lieuts. WILLIAM D. ROGERS, Warrentown; GEORGE E. BOWDOIN, Wilmington; from Sheffield, Ala., Lieut. JOHN M. EARNHARDT, Rockwell.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Lee*, Petersburg, Va., base hospital, from Camp Greene, Lieut. HENRY W. TIDMARSH, Randleman.

North Dakota

To Camp Meade, Admiral, Md., base hospital, from Fort Oglethorpe, Lieut. ALEXANDER B. MACNAB, Beach.

To Fort Oglethorpe for duty, from New York, Lieut. CHARLES R. TOMPKINS, Oberon.

Ohio

To Camp Colt, Gettysburg, Pa., for duty, from Camp Laurel, Lieut. FRANCIS E. REED, Wren.

To Camp Crane, Alentown, Pa., base hospital, from Camp Pike, Major NORMAN P. McGAY, Cleveland.

To Camp Devens, Ayer, Mass., base hospital, Lieut. ALONZO B. BROWER, Dayton.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. DANIEL C. HOUSER, Urbana; Lieut. MARCUS E. WILSON, Cincinnati.

To Camp Dodge, Des Moines, Ia., for duty, from Camp Perry, Lieut. GEORGE W. MANNING, Kelley's Island; from Fort Benjamin Harrison, Lieut. JOHN A. GRAFFT, Hamilton; from Fort Sheridan, Capt. JOSEPH S. RARDIN, Portsmouth.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. HOWARD BENUS, Cincinnati.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Army Medical School, Lieut. CLARKE C. PATTON, Ashland.

To Camp Las Casas, San Juan, P. R., for duty, from Camp Lee, Lieut. ROBERT A. THORNTON, Columbus.

To Camp Lee, Petersburg, Va., for duty, Lieut. GEORGE B. TOPMOELLER, Clifton; from Fort Oglethorpe, Lieuts. FRANK L. SALISBURY, Dayton; BURT A. MARQUARD, Dover.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Capt. SYLVESTER J. GOODMAN, Columbus; Lieut. GEORGE A. HAVEMANN, New Bremen.

To Camp Meade, Admiral, Md., base hospital, from Camp Lee, Lieut. CLYDE B. TERWILLEGAR, Milford.

To Camp Pike, Little Rock, Ark., for [illegible] Capts. DELPHUS B. VIRTUE, Iberia; [illegible] Athens; from Fort Wayne, Capt. LEROY B. HUMPHREY, Akron; Lieut. FRANK B. GREGG, Wellington.

To Camp Sevier, Greenvile, S. C., for duty, from Fort Oglethorpe, Major [illegible] veland.

To C[illegible]., base hospital, Lieut. WILLIAM [illegible] from Eastern Department, Lieut. [illegible]

To Fort Oglethorpe for duty, from New York, Capt. JOHN D. OSMOND, Cleveland. For instruction, Capts. WALTER C. CROUCH, Cleveland; EDWARD L. LEONARD, [illegible] RUSSELL [illegible] Cleveland; EDW[illegible] Orient; WILLIAM F. DEMUTH, Port [illegible] RHINEHART, Springfield; EARL R. MEL[illegible], JOSEPH J. SWEENEY, Toledo; JOHN K. HAMILTON, Youngstown.

To New Haven, Conn., Yale Army Laboratory School, for instruction in bacteriology, Lieut. VICTOR B. HALBERT, Sylvania.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. CHARLES DEC. HOY, Columbus. Neurological Institute, for instruction, Capt. FERN J. BIDWELL, Toledo.

To Syracuse, N. Y., for duty, Capt. HALBERT B. BLAKEY, Columbus.

Oklahoma

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieut. ALONZO P. GEARHART, Blackwell.

To Camp Fremont, Palo Alto, Calif., base hospital, Capt. JOHN S. PINE, Oklahoma City.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CHARLES N. BERRY, Norman.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Logan H. Roots, Lieut. JOEL S. HOOPER, Tulsa.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. CURTIS R. DAY, Oklahoma City; Lieut. JOHN I. DERR, Waurika.

To Canal Zone for duty, Lieut. CLARENCE H. FIELD, Oklahoma City.

To Fort Oglethorpe for instruction, Capt. BENTON LOVELADY, Guthrie; Lieut. HENRY BLENDER, Okeene.

To Fort Riley for instruction, Lieuts. EMORY W. KING, Bristow; CHARLES E. PARKER, Dustin; WILLIAM L. HALL, Freedom; ELLIS JONES, Kiefer; EMMETT JOHNSON, Kinta; JOHN C. BREEDLOVE, Muldrow; BEDFORD W. RUSSELL, Strong City; RALPH R. GREEN, Tulsa; ORA O. DAWSON, Wayne; LEWIS A. STUCK, Yale.

To Fort Snelling, Minn., as orthopedic surgeon, from Camp Grant, Capt. FENTON M. SANGER, Oklahoma City.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. ARTHUR F. HOBBS, Hinton.

To Hot Springs, Ark., for observation and treatment, from Fort Riley, Lieut. WILLIAM A. L. COSSEY, Prague.

To Metuchen, N. J., for duty, from Fort Oglethorpe, Lieut. WILL C. WAIT, McAlester.

To Mount Clemens, Mich., Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. TAZWELL D. ROWLAND, Shawnee.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. HENRY T. BALLATINO, Muskogee.

To Rockefeller Institute for instruction in bacteriology and on completion *to Army Medical School* for duty, Lieut. ORVILLE J. WALKER, Oklahoma City.

Honorably discharged, Lieut. WOODWARD R. MITCHELL, Verden.
Resignation of Capt. GUY B. VAN SANDT, Wewoka, accepted.

Oregon

To Fort Oglethorpe for instruction, from Fort Riley, Lieut. OREL A. WELSH, Oregon City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Leavenworth, Lieut. FRANK R. MENNE, Portland.

Pennsylvania

To Camp Beauregard, Alexandria, La., base hospital, Lieut. HARRY C. WINSLOW, Meadville.

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieuts. GEORGE M. PURVEE, ARTHUR R. WOODS, Philadelphia.

To Camp Dix, Wrightstown, N. J., base hospital, Capts. CHARLES A. STILLWAGEN, GEORGE W. STIMSON, Pittsburgh; Lieuts. LELAND C. RUMMAGE, Sweet Valley; LEWIS S. DUNN, Chester. For duty, from Fort Oglethorpe, Capt. LU VAN LEER BROWN, Castle Shannon.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. AUSTIN F. KLUTZ, Philadelphia.

To Camp Grant, Rockford, Ill., base hospital, from Camp Lee, Major LAWRENCE LITCHFIELD, Pittsburgh.

To Camp Jackson, Columbia, S. C., base hospital, from Army Medical School, Lieut. GUY S. VOGAN, Pittsburgh.

To Camp Lee, Petersburg, Va., for duty, Lieut. ROGER S. PARRY, Washington.

To Camp Meade, Admiral, Md., base hospital, Capt. SAMUEL A. RULON, JR., Phoenixville.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Custer, Lieut. JOHN L. LAVIN, Swoyersville.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. JAMES R. MORROW, Mount Vernon.

To Camp Upton, L. I., N. Y., for duty, Lieut. JOSEPH F. COMERFORD, Plymouth, from Bristol, Lieut. HAROLD A. GHERING, Edinboro; from Camp Holabird Colgate, Lieut. HOWARD S. BUSLER, Philadelphia.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dodge, Capt. JAMES W. BODLEY, Philadelphia. For duty, from Fort Oglethorpe, Capt. ROY E. SLEEPY, Library.

To Camp Wheeler, Macon, Ga., base hospital, Capt. HARRY B. PATTERSON, Pittsburgh.

To Canal Zone for duty, from Lakewood, Lieut. DAVID S. GRIM, Reading.

To Elizabeth, N. J., for duty, from West Point, Miss., Capt. RAY N. LEWIS, Apollo.

To Fort Benjamin Harrison, base hospital, from New York, Lieut. CHARLES K. SHANOR, Sewickley.

To Fort McHenry, Md., for temporary duty, from Camp Meade, Capt. GEORGE H. CROSS, Chester.

To Fort Oglethorpe for duty, from New York, Capt. JAMES WARD, Lucermines; Lieut. CHARLES A. FITZGERALD, Clarion. For instruction, Capts. GEORGE M. BOYD, HAROLD M. WHITEWAY, Philadelphia; WILLIAM H. GLYNN, Pittsburgh; Lieuts. FRANK L. MORROW, Braddock; ESTEN L. HAZLETT, [illegible] M. ELSWORTH, Dorranceton; WILIAM E. K[illegible] WILLIAM S. BRYSON, Hopewell Township; GEORGE S. HENSYL, Mahoney City; THOMAS B. HERRON, Monesson; CHARLES SCHABINGER, Philadelphia; HARRY NEVINS, Pittsburgh; EVANS M. FREE, Stewartstown; EDWARD B. COOPER, Sunbury; HARRY L. BAER, Sutersville; GEORGE H. GRIFFIN, Uniontown.

To Hoboken, N. J., base hospital, from Camp Crane, Lieuts. HARRY F. GARMAN, Barnesboro; ROBERT HAMILTON, Smethport.

To Metuchen, N. J., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. WILLIAM D. STROUD, Philadelphia.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fort Sill, Major ROBERT S. McCOMBS, Capt. JOHN P. GALLAGHER, Philadelphia.

To Morrison, Va., for duty, from Fort Oglethorpe, Lieuts. LOUIS MACKLER, Philadelphia; PAUL G. ATKINSON, Pittsburgh.

To New Haven, Conn., for duty, Capts. JONATHAN C. FOLTZ, Philadelphia; CLARENCE M. MALONE, Shamokin. For instruction, from Fort Leavenworth, Lieuts. OMER R. ETTER, Philadelphia; NORBERT D. GANNON, Pittsburgh. *To Yale Laboratory School*, for instruction in bacteriology, Lieut. WILLIAM M. DANIELS, Lancaster.

To Newport News, Va., for duty, from Fort Sam Houston, Lieut. ERNEST J. ATEN, Pittsburgh.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Dix*, Wrightstown,N. J., base hospital, Capt. SAMUEL W. MILLER, Lancaster. On completion *to Camp Jackson*, Columbia, S. C., base hospital, Lieut. FRANCIS J. CONAHON, Morea.

To Orangeburg, S. C., to make physical examinations and give medical attention to drafted men, and on completion *to his proper station*, Lieut. SAMUEL W. REEVES, Fawn Grove.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Walter Reed General Hospital*, Takoma Park, D. C., for duty, Lieut. WILLIAM B. SWARTLEY, Philadelphia.

To Syracuse, N. Y., for duty, Lieut. CHARLES C. SPANGLER, York; from Camp Jackson, Lieut. EDWARD I. WOLFE, JR., Kingston.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Camp A. A. Humphreys, Lieut. EDGAR B. SLOTERBECK, Monessen.

To Washington, D. C., St. [illegible] for training, from Fort Oglethorpe, Capt. GEOR[illegible]arkleton; from Fort Thomas, Lieut. HORACE L. CORNCROSS, Philadelphia.

To Williamsburg, N. Y., for duty, Lieut. LEROY W. FREDERICK, Philadelphia; from Camp Sheridan, Lieut. JOHN C. TABLE, Freeland.

Porto Rico

To Camp Las Casas, San Juan, P. R., base hospital, Lieut. HILARIO CASO, Santurce. For duty, Lieuts. RAMON B. BERDECIA, Barranquitas; MANUEL L. DEL VALLE, Humacao.

Rhode Island

To Camp Dix, Wrightstown, N. J., base hospital, from Rockefeller Institute, Capt. HERMAN C. PITTS, Providence.

South Carolina

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. ROBERT C. BROWN, Lancaster. For duty, from Eastern Department, Lieut. WARREN H. BURGESS, Sumter.

To Fort Oglethorpe for instruction, Lieut. JOHN K. WICKER, Newberry.

To Fort Sill, Okla., base hospital, from Fort Sam Houston, Major CHARLES O'H. LAUGHINGHOUSE, Greenville.

To New York City, Neurological Institute, for instruction, Capt. BAXTER S. MOORE, Chester.

South Dakota

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieut. ROBERT A. CRAWFORD, Chamberlain.

To Fort Oglethorpe for instruction, Capts. JACOB G. CHICHESTER, Redfield; JOHN F. McKIE, Wessington.

To Fort Riley for instruction, Capt. EDWARD L. PERKINS, Sioux Falls.

The following order has been revoked: *To Fort Sill, Okla.*, base hospital, Capt. BYRON A. BOBB, Mitchell.

Tennessee

To Camp Cody, Deming, N. M., for duty, from Fort Sam Houston, Lieut. GREEN W. McCONATHY, Eads.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Capt. EDWARD D. NEWELL, Chattanooga.

To Camp Upton, L. I., N. Y., for duty, from Camp Meigs, Lieut. WILLIAM V. PRUETT, Brownsville.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Capt. JAMES C. FLY, Lyles.

To Fort Oglethorpe for instruction, Lieuts. CHARLES C. CARR, Cumberland Gap; JACOB H. IDOL, Tate.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. CHARLES P. EDWARDS, Kingsport.

To New Haven, Conn., for duty, Lieut. WILLIAM O. BAIRD, Memphis.

Texas

To Camp Cody, Deming, N. M., for duty, from Douglas, Lieut. ARCHER B. WORSHAM, Brashear; from Fort Sam Houston, Capt. WILLIAM H. HARGIS, San Antonio.

To Camp Fremont, Palo Alto, Calif., Lieut. THOMAS J. CAGLE, Crosbyton.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ANDREW M. HUFFMAN, Polytechnic.

To Camp Logan, Houston, Texas, base hospital, Capt. CHARLES W. TAYLOR, San Antonio; Lieuts. WALTER D. BROWN, Beaumont; JESSE L. MITCHELL, San Antonio.

To Camp MacArthur, Waco, Texas, base hospital, Capt. WILLIAM S. PEDIGO, Strawn; Lieut. OSCAR S. McMULLEN, Victoria. For duty, Capt. MURFF F. BLEDSOE, Port Arthur; Lieut. GEORGE D. PARKER, Houston; from Camp Travis, Lieut. WILLIAM F. SPILLER, Galveston.

To Camp Meade, Admiral, Md., base hospital, Capt. LESTER C. G. BUCHANAN, Big Springs; from Camp Lee, Lieut. JOHN C. THOMAS, Taylor.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. JAMES C. CHEATHAM, Wolfe City.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Bowie, Lieut. FRANK G. SANDERS, Fort Worth. For duty, from Camp A. A. Humphreys, Lieut. OLIVER H. TIMMINS, San Antonio.

To Dayton, Ohio, for duty, from Camp Kelly, Capt. D. LEON SANDERS, Wells Point.

To Fort Oglethorpe for instruction, Lieut. ROBERT W. BOUNDS, Shalowater.

To Fort Riley for instruction, Capts. CLAUDE P. JONES, Bay City; WILL P. ROGERS, El Paso; CHARLES W. GRIFFITH, La Porte; CYLDE H. CRAWFORD, Pidcoke; Lieuts. SAMUEL A. WOOLSEY, Austin; RUBEN F. MARTIN, JAMES M. MILLER, San Antonio.

To Fort Worth, Texas, for duty, from Leon Springs, Lieut. JOHN B. BAUGUSS, White Wright.

To Mineola, L. I., N. Y., for duty, from San Antonio, Capt. WILSON M. BASSETT, San Antonio. *To Signal Corps Aviation School*, for duty, from Montgomery, Capt. ROBERT A. TRUMBULL, Dallas.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Leavenworth, Lieut. GEORGE C. KINDLEY, Dallas.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. EARLE ACKER, Pasadena.

To Syracuse, N. Y., for duty, from Camp Meade, Capt. EDWIN B. KENNER, Galveston.

To Waynesville, N. C., for duty, from Camp Travis, Lieut. CARROL L. MOORE, Houston.

Utah

To Camp Zachary Taylor, Louisvile, Ky., base hospital, from Fort Douglas, Capt. HARRY N. MAYO, Salt Lake City.

To Mineola, L. I., N. Y., for duty, from Dallas, Capt. ROBERT R. HAMPTON, Salt Lake City.

Vermont

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. JOHN W. STEWART, Barre.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Lieut. PATRICK J. McKENZIE, Burlington.

To Fort Oglethorpe for instruction, Capts. THOMAS S. BROWN, Burlington; JOHN P. GIFFORD, Randolph; Lieuts. WILLIAM H. HURLEY, Northfield; GEORGE B. HUNTER, West Battleboro.

Virginia

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp MacArthur, Lieut. JAMES A. MERIWETHER, Holcombs Rock.

To Fort Oglethorpe for instruction, Capts. LAWRENCE E. FLANNAGAN, Charlottesville; ASA W. GRAVES, Lacey Spring; Lieut. RUSSELL J. SHULL, Winchester.

To Otisville, N. Y., for duty, from New Haven, Lieut. JAMES J. BARFIELD, Catawba Sanatorium.

To Washington, D. C., Howard University, for duty, from Fort Oglethorpe, Lieut. BURL BASSETTE, Hampton.

Washington

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. JOSIAH S. DAVIES, Tacoma.

To Fort Riley for instruction, Capt. CHARLES S. HOOD, Ferndale; Lieut. CARL G. RAHAL, Roslyn.

To Mineola, L. I., N. Y., for duty, from San Diego, Capt. RICHARD W. PERRY, Seattle.

To Syracuse, N. Y., for duty, Capt. JOHN A. ALLEN, Medical Lake.

West Virginia

To Camp Bowie, Fort Worth, Texas, base hospital, from Rockefeller Institute, Lieut. FRANK C. HODGES, Huntington.

To Camp Lee, Petersburg, Va., base hospital, Lieut. HARRY E. WHALEY, Hansford.

To Fort Oglethorpe for instruction, Capts. MARTIN V. B. GODBEY, Charleston; JAMES W. McDONALD, Fairmont; EUGENE B. WRIGHT, Richmond; Lieut. OLIVER H. GRIFFITH, Parkersburg.

To Syracuse, N. Y., for duty, from Camp Gordon, Lieut. CHARLES P. S. FORD, Hansford.

The following order has been revoked: *To Camp Beauregard*, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. JOHN E. MILLER, Widen.

Wisconsin

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Leavenworth, Capt. JOHN R. EASTMAN, Kenosha.

To Camp Grant, Rockford, Ill., base hospital, Capt. ALFRED W. GRAY, Milwaukee; Lieut. JOHN C. ZUERCHER, La Crosse.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Oglethorpe, Capt. GENTZ PERRY, Amery.

To Camp Meade, Admiral, Md., base hospital, from Camp Crane, Lieut: CHARLES B. RYDELL, Superior.

To Camp Pike, Little Rock, Ark., for duty, from Fort Sheridan, Capt. CHARLES E. LAUNDER, Viroqua.

To Fort Des Moines, Iowa, base hospital, from New York, Lieut. EARLE F. McGRATH, Appleton.

To Fort Oglethorpe for instruction, Capts. VICTOR F. MARSHALL, Appleton; HERBERT A. ROBINSON, Kenosha; WILLIAM S. DARLING; Lieuts. WALTER G. DARLING, GEORGE F. KENNEY, STANLEY J. SEEGER, Milwaukee.

To Fort Riley for instruction, Capt. FRANK W. McKEE, Richland Center; Lieuts. JOSEPH A. KEITHLEY, Palmyra; SAMUEL C. McCORKLE, West Alis.

To Fort Worth, Texas, for duty, from Fort Sill, Capt. RICHARD S. WILSON, Milwaukee.

To New Haven, Conn., for duty, Capt. LEWIS W. DUDLEY, Milwaukee.

To Rockefeller Institute for instruction in bacteriology, and on completion *to Army Medical School* for duty, Lieut. BEVERLY M. HALL, Milwaukee.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Kearney, Major JOHN R. McDILL, Milwaukee.

Wyoming

To Fort Oglethorpe for instruction, Capt. WILLIAM A. STEFFEN, Sheridan.

To Fort Riley for instruction, Lieut. CHESTER A. CONYERS, Buffalo.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Campaign Against Venereal Disease.—W. C. Blasingame, a member of the faculty of the Alabama Polytechnic Institute, Auburn, has been employed by the state board of health as field representative to the state campaign for the prevention and control of venereal diseases. He will enlist the aid of teachers, speakers and the general public, and will point out the dangers in both civil and military life of these diseases.

Personal.—Dr. William W. Dinsmore, state prison inspector, Montgomery, announces his resignation to take effect September 1, in order to become assistant medical director of the Traveler's Insurance Company, Hartford, Conn.——Dr. Glenn Andrews, Montgomery, who has been a member of the state board of health, has been recommended by the governor as state prison inspector.——Dr. Harry C. Crelly, formerly pest house physician for Birmingham, has been appointed municipal surgeon.

Divorce of Local from State Health System Voted Down.—At the meeting of the Jefferson County Medical Society at Birmingham, July 8, a resolution was introduced by Dr. Edward P. Riggs, Birmingham, proposing a complete divorce of the official health connection between the state and local governments and the state and county medical societies. This plan was referred to the board of censors, who reported to the society, July 15, recommending that the present system of electing the state and county health officers by the state and county societies be maintained. The report was adopted by practically a unanimous vote.

DISTRICT OF COLUMBIA

Personal.—Dr. William C. Fowler assumed office as health officer of the District, August 1, succeeding Dr. William C. Woodward, who resigned to accept the position of commissioner of health of Boston.——The Georgetown University Medical School announces the following faculty changes: Dr. Clarence R. Dufour, who resigned as clinical professor of diseases of eye and ear has been appointed emeritus professor in these specialties; Dr. Isaac S. Stone, professor of gynecology, who resigned after twenty-six years of service, has been succeeded by Dr. J. Thomas Kelly, and Drs. James M. Moser and John A. Foote have been appointed assistant professors of pediatrics.

GEORGIA

Reporting of Contagious and Infectious Diseases.—The legislature of Georgia passed a law authorizing a state board of health in 1903, and this law contains a section providing, "That it shall be the duty of the local boards of health, and of physicians in localities where there are no health authorities, to report to the state board of health promptly on the discovery thereof the existence of any of the following diseases, to wit: Asiatic cholera, yellow fever, scarlet fever, smallpox, diphtheria, typhus or typhoid fever, and of such other contagious or infectious diseases as the state board of health from time to time may specify." Several diseases have since been added and the following is a complete list: actinomycosis, acute infectious conjunctivitis, ankylostomiasis (hookworm), anthrax, cerebrospinal meningitis, chickenpox, cholera, dengue, diphtheria, dysentery (amebic), dysentery (bacillary), favus, german measles, glanders, gonorrhea, leprosy, malaria, measles, mumps, yellow fever, paratyphoid fever, plague, pneumonia (acute lobar), poliomyelitis, rabies, Rocky Mountain spotted or tick fever, scarlet fever, septic sore throat, smallpox, syphilis, tetanus, trachoma, trichinosis, tuberculosis (pulmonary), tuberculosis (other than pulmonary), typhoid fever, typhus fever and whooping cough. Since the beginning of this year the state board of health has been making a serious effort to have this part of the law enforced. The secretary of the board has recently sent out return postcards to every physician in Georgia, on which reports are being made. Dr. Thomas F. Abercrombie, Atlanta, secretary of the board, has been appointed collaborating epidemiologist of the United States Public Health Service. The board is also cooperating with the United States Public Health Service, by establishing free clinics for venereal diseases in each congressional district and by investigation of epidemics in the state by Dr. Josephus J. P. Bowdoin, Adairsville, epidemiologist for the board, and acting assistant surgeon, U. S. P. H. S. The legislature has manifested marked interest in the work of the board and gives promise of more liberal financial assistance.

ILLINOIS

Typhoid Fever.—The typhoid fever epidemic in Moline is unabated and fourteen new cases, making 109 in all, have been reported with two deaths.——An epidemic of typhoid fever in Danville is declared by the state board of health to have been traced to two sources of milk supply of the city.

Illegal Practitioners Prosecuted.—The Department of Registration and Education of Illinois has secured a conviction against F. Zegsda in the Municipal Court of Chicago, and suit was filed against Jeb Maddox, East St. Louis, for practicing medicine without a license. Zegsda was fined $100 and costs.

Farewell Dinner to Reserve Corps Men.—The association of Misercord of the Heber Memorial Hospital, Pana, gave a dinner at the hospital, July 25, in honor of the physicians who have been called into United States Service. The guests of honor were Drs. Roscoe C. Danford, Walter Burgess, and Frederick J. Eberspacher. Dr. John F. H. Deal, Springfield, was toastmaster.

License Suspended.—The Department of Registration and Education of Illinois has suspended the license of Dr. H. E. Ronalds, Mattoon, until the cases now pending against him for performing criminal abortions are finally adjudicated by the courts. On the finding of the court in these cases will depend the future action of the department in the matter of the revocation of the license of Dr. Ronalds.

Chicago

Child Welfare Department Moves.—The work of the Child Welfare Department of the Women's Committee, Council of National Defense, Illinois Division and that of the Elizabeth McCormick Memorial Fund have been transferred to the fifth floor of the Tower Building, 6 North Michigan Avenue.

Correction.—The notice which appeared recently in the daily press, that Dr. William M. Harsha had been appointed superintendent of the Municipal Tuberculosis Sanitarium, was incorrect. Dr. Harsha has been appointed a member of the board of medical directors of the Municipal Tuberculosis Sanitarium of Chicago.

INDIANA

Venereal Campaign in Fort Wayne.—An active campaign against venereal diseases was opened in Fort Wayne, July 30, by Dr. John N. Hurty, state health commissioner, Senior Surgeon Julius O. Cobb, U. S. P. H. S., Acting Assistant Surgeon Edward C. Helwig, U. S. P. H. S., and Captain William F. King, M. C., Ind. N. G.

KENTUCKY

Venereal Disease Regulation.—Under Chapter 63 of the Kentucky Statutes the state board of health is empowered to formulate and enforce rules for the control of infectious and contagious diseases. The common council of Louisville, March 28, passed an ordinance including venereal diseases in this classification. A woman was arrested for soliciting soldiers on the street, and confined to jail. On motion before the court for her release, arguments were heard to test the validity of the ordinance, and Judge Lincoln decided that the rules and regulations were within the legislative power, that they were properly adopted and promulgated and that the detention of the prisoner for a reasonable length of time is lawful. It is now possible, under this ordinance, to confine in the county jail all prostitutes and other persons suffering from venereal disease in an infective state, until they can be treated.

MARYLAND

Johns Hopkins Unit Overseas.—The Johns Hopkins Unit, which was in training at Allentown, Pa., for several months and which left some time ago for overseas, has arrived in Italy after remaining a short time in France.

More Wards at Fort McHenry.—A new group of hospital buildings connected by a series of corridors is under construction at U. S. A. General Hospital No. 2. Quarters are now prepared for 1,000 patients, and when the horseshoe of buildings is finished there will be accommodations for 2,500.

Johns Hopkins Faculty Member Dies.—E. W. Sanford, Ph.D., Yale University, New Haven, Conn., 1917, assistant in anatomy, zoology, embryology, and entomology in Johns Hopkins University Medical School, aged 25, died at his home in Centerville, Conn., July 23, from septicemia, caused by accidentally inoculating himself in the course of his experiments.

Personal.—Col. John M. T. Finney, chief surgical consultant of the American Expeditionary Forces, has recently arrived in Baltimore, bound for Washington on an important secret mission connected with his work overseas. The length of Colonel Finney's stay in this country is as yet undetermined, but it is probable that he will return to France as soon as he has completed his mission at Washington.

Improvements at Quarantine.—Plans for extensive improvements at Quarantine are under consideration by the United States Public Health Service. They include a modern hospital building and a fumigating plant, which the health department of Baltimore recommended several years ago. The landing may be overhauled and better facilities provided for the boarding and inspection of vessels. It is understood that the city will continue to lease the station to the government until Congress makes an appropriation covering the purchase price of $175,000.

MICHIGAN

Personal.—Dr. Lafon Jones, formerly of Sebewaing, began work as full-time city physician of Flint, July 22.——Dr. Vinton J. Rickerd, Charlotte, is reported to be seriously ill with septicemia as the result of a pin prick.

Violators of Medical Laws.—The Michigan State Board of Registration in Medicine has recently taken action in regard to violators of the medical practice laws as follows:

Dr. Walter Moffat, Grand Rapids, was convicted in the Superior Court, Grand Rapids, Michigan, May 23, 1917, under the provisions of Section 3, subdivision 6, clause (a), of Act. No. 368 of the Public Acts of Michigan, 1913, "The procuring, aiding or abetting in procuring a criminal abortion." License No. 3909, dated March 22, 1900, cancelled by Michigan State Board of Registration, Jan. 23, 1918. Subsequent to cancellation of license, Dr. Moffat was arrested for practicing without a license, given a suspended sentence, and he left Michigan for the west.

"Professor" Winney, Grand Rapids, was arrested May, 1917, for practicing medicine without a license, pleaded guilty and was given a suspended sentence.

Dr. William Gayle French, Detroit.—Two warrants issued against him, one for immoral advertising and the other for obtaining money under false pretenses. Warrants were not served owing to the fact that he left for parts unknown before service could be effected.

Dr. Irving E. Sanders, 65 West Fort St., Detroit, was convicted in the Circuit Court for the County of Lenawee, Jan. 8, 1917, on the charge of grossly unprofessional conduct, he having been habitually addicted to the use of narcotic drugs. His license No. 3146, dated March 22, 1900, was revoked by the Michigan State Board of Registration in Medicine, July 20, 1918.

MINNESOTA

Training School Established.—The Sisters of St. Joseph's Hospital, Brainerd, have established a nurses' training school to be affiliated with St. Mary's Hospital, Duluth.

State Society to Meet.—The annual meeting of the Minnesota State Medical Association will be held in Duluth, August 28 to 30. One of the features of the three-day meeting will be a tribute to the men of the society who are in the military service.

NEW YORK

Two New York Towns Publish Milk Reports.—Nyack and South Nyack have a plan whereby monthly bacteriologic reports on the milk supply are published in the local papers, and supplemented by suggestions to householders on the care of milk after it has reached the home.

Personal.—Dr. Elliot I. Dorn, who has been resident physician and roentgenologist at the New York City Municipal Sanatorium at Otisville, has been appointed superintendent of the Pleasant Valley Sanitorium, the new Steuben County tuberculosis hospital.

Montgomery Preventorium Open.—The preventorium on the grounds of the Montgomery County Sanatorium was opened early in July and will remain open for about two months. It accommodates about forty children. Plans are being worked out to make this a permanent part of the activities of this institution.

Bacillary Dysentery in Poughkeepsie.—A few cases of bacillary dysentery are again reported in Poughkeepsie, where the disease has been epidemic for the past two summers. In each instance it has been found that the patient is a member of a family in which the disease appeared last summer. Two persons who were ill with the disease last year have been found to be carriers.

New York State Association of Public Health Laboratories Elects New Officers.—This organization has elected the following officers for the coming year: president, Dr. Warren B. Stone, Schenectady; vice-president, Dr. Joseph S. Lawrence, Albany, and secretary and treasurer, Dr. Howard I. Davenport, Auburn. This organization has decided to meet henceforth in conjunction with the state medical society.

Lake George Health District.—By an act of the legislature the shores of Lake George have been converted into one health district which is to be in charge of one full-time health officer at an adequate salary. Hitherto it has been possible for one municipality in this district to nullify to a large extent any attempt to improve sanitary conditions on the part of its neighbors. The new plan will insure sanitary control of the entire lake shore which will greatly add to the value of this locality as a health resort. It is believed that the results obtained in this district will justify the creation of similar districts elsewhere in the state. Dr. Minna M. Rohn, Cleveland, has been appointed sanitary supervisor of the new district.

Addition to Fox Hills War Hospital.—An additional forty-bed ward has recently been added to the big Clearing Hospital at Fox Hills, Staten Island, known as General Hospital No. 10. This structure was completed within ten hours and thirty-eight minutes from the time of starting work, though at that time the post holes were not dug and the lumber was not cut to size. The new pavilion is 156 feet long, 24 feet wide and has a porch along the entire length on one side. More than 1,000 men were employed during the day and the building was complete by night, including the lighting, water system and heating system, and even the fire extinguishers were hung in place. The construction division of the Army is prepared for similar work in all camps and cantonments, should the necessity for increased hospital facilities arise.

Venereal Diseases Bureau Established.—On July 1 a Bureau of Venereal Diseases was established in the New York State Department of Health in accordance with the provisions of a new law (Chap. 342) passed by the Legislature of 1918. By this law the Bureau is authorized to buy, manufacture and dispense remedies for the treatment of venereal diseases, to examine specimens submitted to it, to make all necessary tests, to provide and distribute literature on the suppression and cure of these diseases and to use such other means as seem desirable for the instruction of the public. The personnel of the bureau consists of a chief, a consultant, an organizer and inspector of clinics, and dispensaries, a lecturer on social diseases, and a public health nurse. The first duty and service of all these officers is recognized to be educational. Their special duties are suggested in their titles. The plan is first to arouse public interest in these diseases, their modes of spreading, their effects on the individuals and on the community and finally in methods for their control and suppression. For this purpose each member of the Bureau is available either for organization work or public addresses. For mother's clubs, Y. W. C. A. and other female organizations the public health nurse may be used. A set of lantern slides has been prepared to help make these addresses more interesting. The second step will be to assist in the establishment of clinics and dispensaries for the treatment of indigent cases. On methods of treatment the consultant will be glad to advise with the proper authorities at any time. On the cost and type of dispensary to establish, the organizer of dispensaries will be able to furnish valuable suggestions from his personal experience. The follow up methods that will be necessary can be organized by the public health nurse. The third step will be to furnish arsphenamin (salvarsan) for treatment of indigent cases. There is a small appropriation which will become available later for this purpose. The State Laboratory is doing experimental work on this substance and hopes soon to be able to furnish it as needed. The necessary steps will be taken at once to put the new act in force. In addition a number of amendments to the Sanitary Code relating to venereal diseases go into effect August 1. Later the entire state will be divided into sections and each section made a unit for carrying on the work.

New York City

Hospital Changes Name.—The German Hospital of Manhattan has changed its name to the Lenox Hill Hospital.

New Members of Regents Board.—Drs. Franklin W. Barrows and William G. Bissell, both of Buffalo, were named as members of the New York State Board of Regents, July 22, and Dr. Jay G. Roberts was appointed a member of the board of dental examiners.

Society to Continue to Operate Hospital.—The Wyoming County Medical Society at its monthly meeting held at Fairview, Silver Lake, July 18, decided to continue to operate the Warsaw Hospital. Dr. Ross W. Thompson, resident physician of the hospital, has entered the military service.

Outings for Sick Soldiers and Sailors.—Dr. John A. Harriss, Deputy Police Commissioner of New York City, has placed his large steam yacht at the disposal of the Mayor's Committee on National Defense to be used in giving convalescent soldiers and sailors in the city hospitals day outings on the waters in the vicinity of the city. The yacht made its first trip July 30.

Cause of Epidemic Discovered.—Surg. John W. Kerr, U. S. P. H. S., and Drs. William B. May, Albany; Bruno L. Schuster, Albany, and Henry R. Lawrence, Atlantic City, N. J., of the state medical department, who have been investigating an epidemic among the employees of the Elba Canning Factory, have concluded that two diseases coexisted, the one typhoid fever and the other an intestinal infection. Practically all these patients have now recovered.

Training Nurses' Aids.—The heads of several hospitals in this city have on their own initiative begun training nurses' aids in the belief that, though the plans of the Army Medical Staff do not call for such aids, the absolute necessity for them will become greater and greater as more American troops are engaged in fighting. Hospital aids may be trained in six months and are then capable of doing 60 per cent. of the work trained nurses have been doing. Dr. Sigmund Goldwater, in advocating this plan, says that hospital aids have been the salvation of the British hospital service.

NORTH CAROLINA

Sanatorium Doubled in Capacity.—It is reported that the War Department has decided to double the size and capacity of its tuberculosis sanatorium at Azelea, near Asheville.

Personal.—Dr. Lewis B. McBrayer, Sanatorium, has been appointed secretary of the Medical Society of the State of North Carolina to succeed Dr. Benjamin K. Hays, who has resigned to enter the military service.——Dr. William Thomas Rainey, Badin, was seriously injured in an automobile accident last month.

District Society Meeting.—The semiannual meeting of the Eighth District Medical Society was held at North Wilkesboro under the presidency of Dr. William P. Horton, North Wilkesboro. Dr. John A. Williams, Greensboro, was elected president, and Dr. William M. Jones, Greensboro, secretary. Greensboro was selected as the next place of meeting.

License Revoked.—It is announced that the license permitting Dr. Joseph W. Summers, Charlotte, to practice in the state was rescinded permanently by the state board at its session in Raleigh, July 10. Dr. Summers was convicted of manslaughter for malpractice on a young woman about two years ago, but later was pardoned by the governor who barred him from practicing medicine for three years.

PENNSYLVANIA

New State Dispensaries Open.—Five additional state dispensaries were opened last week at York, Lancaster, Williamsport, Wilkes-Barre and Altoona, for the treatment of venereal diseases. The dispensaries are in connection with the state tuberculosis service and the clinics are held in the same buildings.

Lehigh Valley Physicians Meet.—At the semiannual meeting of the Lehigh Valley Medical Society, held at Kittaning House, Delaware Water Gap, July 25, the principal address was delivered by Dr. Ernest LaPlace, Philadelphia, on "Focal Infections." The following officers were elected: president, Dr. Noah W. Reichard, Bangor; vice president, Dr. Frederick A. Fetherolf, Allentown; secretary, Dr. William H. Kunsman, Nesquehoning; and treasurer, Dr. David H. Keller, Pen Argyl.

Personal.—Dr. Edward H. Harris, Snow Shoe, is under treatment at the Bellefonte Hospital, on account of crushing injuries of the chest received in an automobile collision a few days ago.——Drs. Simon S. and C. S. Williams Koser, Williamsport, have been selected by the trustees of the Masonic Homes, Elizabethtown, to take charge of the Philadelphia Memorial Hospital on the grounds of the home.——Dr. John W. Bruner, Bloomsburg, was seriously injured in an automobile accident, recently.

Philadelphia

Tablet for War Hero.—A memorial tablet to Capt. Frederick David Clair, M. R. C., U. S. Army, formerly of this city, who was killed in action, May 10, was unveiled at the Jewish Seaside Home for Invalids, Atlantic City, N. J.

Head of Army Nursing School.—Miss C. Milne, head of the training school for nurses at the Presbyterian Hospital for twenty-three years, has been appointed superintendent of the army school of nurses at Camp Dix, in connection with the present campaign for student nurses. Miss Annie Wray, formerly superintendent of the Polyclinic Hospital and instructor of nurses at the Philadelphia General Hospital, has been appointed assistant. The first thirty students already enrolled will be received immediately for a three-year course.

Byberry Farm to Be Federal Hospital.—The Surgeon-General has formally accepted the offer made by the city of Philadelphia of the use of five incomplete buildings, formerly a group of structures intended for the city insane at Byberry, to be used as a government hospital for wounded soldiers and sailors brought from overseas during the war. This will be one of the large general and special reconstruction hospitals being established throughout the country. Soldiers recruited from this locality will be returned to this hospital when convalescing from injuries and disease, as experience has proved that the injured make more speedy recovery when treated in or near their home towns. In connection with the reconstruction work among the injured, a survey is now being made of all the industries in this state, with a view of ascertaining how many crippled soldiers can be employed at gainful occupations.

VIRGINIA

Venereal Clinic.—The United States government has established, in connection with the health department of Richmond, a free clinic for the treatment of venereal disease at the Medical College of Virginia. Dr. Thomas L. Driscoll, Richmond, has been placed in charge of the clinic which is to be open from 5 to 9 p. m.

Personal.—Dr. Thomas W. Edmunds, Danville, has been appointed a member of the state board of health to succeed Dr. Lewis E. Harvie, deceased.——Dr. R. Sumter Griffith has been elected mayor of Basic City.——Dr. Moses D. Hoge, Richmond, has been elected a member of the state school board to succeed Dr. James M. Hutcheson, who has resigned to enter the military service.——Dr. William F. Drewry, Petersburg, who has been seriously ill with septicemia, is reported to be much improved.——Dr. Ennion G. Williams, Richmond, state health commissioner of Virginia, and president of the Medical Society of Virginia, has been appointed assistant surgeon, U. S. N. R. F.——Dr. A. B. Cooke, United States Consul at Patras, Greece, and family have arrived in Norfolk.

CANADA

Hospital News.—The governors of the Mountain Hospital, Hamilton, Ont., have been asked by the military authorities of Canada for further accommodation for twenty returned soldiers. It is likely that the government will finance a new wing for the purpose.——As the result of the appointment of a French-Canadian doctor to the Water Street Hospital, Ottawa, friction has occurred, and one medical member of the staff has resigned. There are two English doctors on the staff of eight, the other six being French-Canadians. Another English doctor was said to be in line for the appointment.

Infant Mortality in Montreal.—Dr. William A. L. Styles, secretary of the Baby Welfare Committee, Montreal, recently demanded that an investigation be held into the causes of Montreal's heavy infant mortality. In reply, Dr. Boucher, the medical officer of health, quotes figures to prove that the death rate in infant mortality is steadily declining in that city. In 1914 there were, from January 1 to July 13, 2,352 deaths of children under five years of age; 1915, 2,425; 1916, 1,883; 1917, 2,231; 1918, 1,820. Of the 241 deaths in Montreal during the week ending July 27, 128 were children under five years of age. Other statistics given are: in 1906 the deaths in infants numbered 271 per 1,000 births; in 1917, 178 per 1,000 births.

Personal.—Lieutenant-Colonel Hardy, in command of the Toronto Military Base Hospital, is mentioned for the command of the new military hospital of 2,200 beds in Rosedale, Toronto.——Lieut.-Col. Harold C. Parsons, Toronto, lately returned from England, is enjoying a holiday with Lieut.-Col. D. J. Gibbs Wishart, at the latter's summer residence, Go-Home Bay, Muskoka.——Capt. Harvey Gordon Young, St. Mary's, Ont., formerly an intern in the Toronto General Hospital, has been mentioned in despatches. He received the Distinguished Service Order several months ago for exceptional galantry.——Capt. Chester C. Richardson, Windsor, Ont., has returned from overseas service.——Major William J. Clark, Toronto, returned from the Ontario Military Hospital, England, is now on the casualty board, Toronto.

GENERAL

Correction.—The report of the death of Passed Asst. Surg. Paul Tonnel Dessez, U. S. Navy, which was announced in THE JOURNAL, July 13, was incorrect, owing to an error in the cablegram announcing the awards of the Distinguished Service Cross for bravery, in which Dr. Dessez was erroneously included in the posthumous list.

Colored Physicians to Meet.—The twentieth annual meeting of the National Medical Association will be held in Richmond, Va., August 27 to 29. The program includes important discussions on medicine, surgery, dentistry and pharmacy. Clinics and demonstrations and scientific sessions will be held at the Virginia Union University. Dr. James H. Blackwell is chairman of the committee of arrangements.

Bequests and Donations.—The following bequests and donations have recently been announced:

Childrens' Homeopathic Hospital and Women's Homeopathic Association of Pennsylvania, Philadelphia, $25,000 by the will of Mrs. Sarah A. C. Lloyd.

Samaritan Hospital, Philadelphia, $2,500, and a continued bequest of $5,000 to the Home of the Merciful Savior for Crippled Children, Philadelphia, and the Hospital for Consumptives, Chestnut Hill, by the will of Mrs. Carra P. Miles.

Obstetricians and Gynecologists to Meet.—The thirty-first annual meeting of the American Association of Obstetricians and Gynecologists will be held at the Hotel Statler, Detroit, September 16 to 18, under the presidency of Dr. Albert Goldspohn, Chicago. Dr. James E. Davis, Detroit, is chairman of the committee of arrangements. All sessions will be held in the Statler Hotel with the exception of the first evening session which will be held in the Wayne County Medical Building.

Sioux Valley Physicians Meet.—The annual meeting of the Sioux Valley Medical Association was held in Sioux Falls, S. D., July 24, and the following officers were elected: president, Dr. Joseph G. Parsons, Sioux Falls, S. D.; vice presidents, Drs. Alfred E. Spalding, Luverne, Minn., Daniel T. Quigley, Omaha; secretary, Dr. George S. Browning, Sioux City, Iowa, and treasurer, Dr. H. G. J. Koobs, Scotland, S. C. It was decided to hold the next meeting of the association at Sioux City, Iowa, in January, 1919.

FOREIGN

Course of Lectures on Soldiers' Malingering.—The military authorities of the Milan district recently organized a course of lectures on what they called autolesionism, in charge of Bondi, professor of legal medicine at Siena. The lectures were given by six of the higher army medical officers.

Red Cross Official Killed by Enemy Shell.—The *Policlinico* pays tribute to Lieutenant McKey, in charge of an advanced Red Cross station on the Piave front, who was killed by an enemy shell. It is said that he is the first officer of the American Red Cross to give his life for the cause of the Allies.

Rank for Italian Medical Officers.—The *Riforma Medica* states that until recently the higher army medical posts were the *tenente generale medico,* who served as chief inspector of the entire medical service, and three positions as *maggior generale medico,* who served also as inspectors. A recent decree institutes the rank of brigadier-general, and provides for seven medical brigadier-generals, with age limit of 62, and pay of 9.000 lire, about $1,800.

Compulsory Vaccination of All Government Employees.—The *Presse médicale* states that a decree emanating from the minister of the interior renders compulsory vaccination or revaccination of every person, regardless of age, belonging to the permanent, temporary or auxiliary personnel of the state administration and all services connected therewith, unless within ten days they can produce a medical certificate stating that they have been successfully vaccinated against smallpox within less than five years. The penalties for infraction are also fixed by law.

Blinded Soldiers.—The *Nederlandsch Tijdschrift* mentions a report of Professor Silex, a Berlin ophthalmologist, to the effect that he has trained 250 blinded soldiers to be self-supporting, and has found that many of them are able to fill positions after the completion of their training which no one would have supposed a blind man could fill. Among the blinded men were two lawyers, four musicians, two teachers, six merchants and one physician. Positions in factories are now held by eighty-eight; thirty-six are typists or correspondents; thirty-three are doing agricultural work, and seven are telephone operators.

German Children Sent to the Netherlands.—The *Nederlandsch Tijdschrift* states that 20,000 children were sent from Germany to the Netherlands for a longer or shorter stay during 1917. The plan of children's outings of this kind worked so well that a society has now been formed for the Netherlands children, to distribute them in Netherlands families in the country for similar outings. Dr. Dekker of s'Gravenhage is the leading spirit of the movement, backed by the Association to Arrest the Spread of Tuberculosis. The minister of the interior has appropriated 50,000 florins for the work, and committees are being formed in every district, with a central commission in charge of the whole.

The Campaign Against Tuberculosis in Italy.—The *Policlinico* expatiates on the valuable information that is now being accumulated in Italy as all men under 40 have been subjected to medical examination with a view to military service. The authorities are thus having placed in their hands a complete census of all the male tuberculous subjects throughout Italy. They are studying how to use this for an actual service of defense against the spread of tuberculosis—not to ostracize the tuberculous, but to combat the spread of the disease as much as possible. The aim is not to limit the survey to men but to seek out tuberculous girls and women likewise. Hitherto there has been no supervision of the well-to-do tuberculous, and they have never been under authoritative control. But all this is changed, and the names and addresses of all the tuberculous men in the country are now catalogued. It is hoped by this means to be better prepared to meet the menace of the wider spread of tuberculosis which seems impending not only as the inevitable consequence of the war, but as the effect of carelessness on the part of individuals who, without much sacrifice, could avoid infecting others.

Message from French Physicians to the American Red Cross and American People.—The Union des syndicats médicaux of France—representing 10,000 physicians—recently sent the following message of appreciation and gratitude to the president of the American Red Cross in France and through him to the people of America:

"Le Conseil d'administration de l'Union des syndicats médicaux de France,

"Après avoir, au nom des dix mille médecins qu'il représente, écrit au président de la Croix-Rouge américaine en France afin de lui exprimer sa reconnaissance émue pour tout le bien qu'elle est venue accomplir avec une inlassable générosité et un dévouement admirable dans notre pays,

"Envoie au peuple américain et à son noble représentant l'assurance de sa profonde admiration et de sa vive reconnaissance.

"Il a l'intime conviction que la confraternité d'armes des deux grandes Républiques et leur union indissoluble, dans l'avenir, seront la sauvegarde des idées de paix, de droit, de justice et de progrès." (Published in the *Presse médicale,* July 8, p. 455.)

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

State Antituberculosis Dispensary Opened at Buenos Aires.—The first national dispensary for diseases of the chest has been opened at Buenos Aires, fully equipped for consultation, diagnosis and welfare work for the tuberculous in general. Food is distributed to the tuberculous poor, and the whole institution is said to be well equipped in every respect. It was planned and is managed by Dr. E. R. Coni, who has been a leader in Argentina for many years in matters of hygiene and prophylaxis. He hopes to have a dispensary of the kind in different parts of the city, and outlines a plan for fifteen others, locating them in districts where the tuberculosis mortality is highest. The one already installed is in the San Cristobal district which has a population of over 70,000 and a tuberculosis mortality of 8.7 per ten thousand inhabitants. In the larger centers he estimates that there should be a dispensary of the kind for each hundred thousand inhabitants. His experience in the four dispensaries that have been maintained by the Liga Argentina contra la Tuberculosis has shown that it is difficult to find good quarters for such dispensaries both on account of the buildings not being adapted for the purpose, and because owners refuse to rent for a dispensary of the kind, or ask exorbitant rents. Consequently the league found it advisable to erect its own buildings for its second dispensary, and the same plan has been followed at Rosario, which now has a model building and dispensary at work. But the funds available did not permit the league and will not permit the state to erect more buildings for the purpose.

BUENOS AIRES LETTER

Buenos Aires, June 19, 1918.

Tumult in Cordoba University

The movement for reform in the management of the universities of Argentina—which are all state institutions—was described in a previous letter, page 297. An unexpected turn has been taken as, according to the new arrangement, the faculties met and elected Dr. A. Nores of the medical faculty to be rector of the university. The students regarded this election as the result of a reactionary confabulation, and that it would annul all the progress and the reforms which had been inaugurated. On account of this, before the election could be formally concluded, the students invaded the hall in which the representative board meeting was being held, and great tumult resulted. The students declared a strike, and appealed from the election to the national government. The students at the University of Buenos Aires also called a sympathetic strike for four days, attendance at class to be suspended for this four days period.

The Campaign Against Tuberculosis

The national government has just inaugurated in the mountains near Cordoba, at Bialet Massé, a state sanatorium for climatic treatment of tuberculosis. The sanatorium can shelter 1,200. A preventorium dispensary, called the Dr. J. A. Ortiz y Herrera dispensary, has been opened at Cosquin, Sierra de Cordoba, and Buenos Aires has also a new dispensary for the purpose, a model of its kind, in charge of Dr. E. R. Coni.

Prizes Awarded by the University

The prize offered by the medical faculty for 1917 for the best thesis presented, has been awarded to Dr. A. Gutierrez for his work "Topographic Anatomy of the Peritoneum." The Wilde prize for the best thesis on forensic medicine was bestowed on Dr. O. Loudet, author of "Passion in Crime." The prize for the best work of the year 1915-1916 was awarded to Dr. P. C. Escalada for his work on "Curie Therapy."

Resignation of New Chief of Public Health Service

Dr. A. Alfaro has resigned the presidency of the Departamento Nacional de Higiene for the reason that the government did not decide to adopt the plan he had advised as to the reorganization of the personnel, and the plans of prophylaxis which he had outlined.

Epidemics of Typhoid

Typhoid fever appears in epidemic form every year in a considerable part of the country. Last year the accidental infection of one of the sources of the water supply caused a water-borne epidemic of typhoid at Lomas, Banfield and Temperley, close to Buenos Aires. The investigations of the public health service have demonstrated that the first and second layers of water are contaminated, judging from their content in colon bacilli. The last meeting of the Sociedad de Higiene, Microbiologia y Patologia discussed the matter, and it was reported that paratyphoid A and B bacilli had likewise been encountered.

Normal Beef Serum in Treatment of Anthrax

Treatment of anthrax with normal beef serum continues to give excellent results. At the Hospital Muñiz about 250 cases have been treated with it, the mortality keeping below 2 per cent. The demand for anti-anthrax serum at the bacteriologic institute of the national public health service has been so great that the animals have had to be bled white to provide the serum asked for.

Rapid Immunization of Horses Producing Antitoxins

At the bacteriologic institute of the public health service, Kraus and Sordelli have succeeded in obtaining from the animals used for the purpose antidiphtheria and antitetanus serum in from one to two months. The diphtheria antitoxin is produced by injecting in rapid sequence and in rather large doses the toxin, exactly neutralized. The antitetanus serum is prepared with toxoids. The same method as used for diphtheria has given excellent results in the production of snake venom antiserum.

PARIS LETTER

Paris, July 6, 1918.

Personal

Dr. Paul Carnot, formerly associate professor in the Faculté de médecine de Paris, has been made professor of therapeutics in place of Dr. Marfan, who has been called to the newly created chair of hygiene and the clinic of diseases of childhood.

June 18, the Academy of Medicine elected two members. Dr. Hartmann, professor of clinical surgery in the Faculté de médecine of Paris, was elected a member of the section on surgical pathology, and Dr. Thibierge, physician to the hôpital Saint-Louis and secretary general of the Société de médecine légale de France, was elected a member of the section on public hygiene and legal medicine.

Determination of Time of Failure of Nerve Suture

Dr. Louis Mourier, sous-secrétaire d'Etat du Service de Santé militaire, has asked the Société de chirurgie de Paris the following question: In cases of nerve suture, what is approximately, for each important nerve, the time considered necessary to conclude that the intervention has proved ineffectual? The society appointed a committee to consider that problem. The spokesman for the committee, Dr. Albert Mouchet, reported that in the present state of our knowledge it is impossible to give a definite answer to the question propounded. Two types of cases are encountered following nerve suture: (1) one type in which no sign of return of either motor or sensory function is noted; (2) the type of case in which the presence of certain signs (motor, sensory, electric) permits of prognosticating the return of function, either partial or complete. In the cases of the first type, there is no need to consider separately each of the principal nerves in order to determine the time of incurability. In general, a bad prognosis should not be made until at least two years have elapsed since the time of suture. In the second class, it is impossible to set any time when the case may be said to be incurable.

Intravenous Administration of Hexamethylenamin

At a recent meeting of the Société médicale des hôpitaux de Paris, Dr. Loeper discussed the intravenous administration of hexamethylenamin. The solution used contains 0.25 gram of hexamethylenamin to the cubic centimeter of cold sterilized water. Dr. Loeper and Dr. Grosdidier have used these injections in four groups of cases: typhoid, bronchopneumonia and pneumonia, diseases of the kidneys, and of the liver. The results are said to have been infinitely superior to those obtained from hypodermic or oral administration of the drug. The action has always been threefold: antipyretic, sedative and diuretic.

In collaboration with Dr. C. Wagner, Dr. Loeper has been able to confirm this triple action, and they have also found that the intravenous use of hexamethylenamin can be applied advantageously in certain cases of pulmonary and visceral tuberculosis. They have noted a favorable effect on the fever, the toxemia and sepsis, and that its antipyretic action, while slow, is progressive, that it has sedative effects, and that depression is never caused, and, furthermore, it seems to reduce the toxic phenomena.

Saline Solutions in the Treatment of Gastro-Intestinal Atony

At a recent session of the Académie de médecine, Prof. Georges Hayem enumerated the excellent results he has had from the use of saline solutions in the treatment of gastro-intestinal disturbances. He gave two new formulas of saline solutions, taken from the analysis of the waters of Châtel-guyon. One of these formulas contains 2.50 grams each of sodium chlorid and chlorid of magnesium crystals, and 2 grams of bicarbonate of soda per 1 liter of water. In the second formula the bicarbonate of soda is replaced by sulphate of soda, 3 to 5 grams. Hayem has used these solutions in the treatment of myasthenic dilatation of the stomach with or without marked muscular atrophy and absence of any mechanical obstacle to evacuation. In these cases, one generally observes a hypopeptic type and glandular atrophy more or less advanced. In a large number of these patients there is also present intestinal atrophy, which is favorably affected by the first of these solutions. If constipation persists, then the second solution may be used to good advantage.

Antimalaria Measures

The Lannelongue Institute of social hygiene, which, in spite of the war, has begun its work of social experimentation and sanitary education under the direction of Senator Paul Strauss, president, and Dr. Roux, vice president, has responded to the desire expressed by M. Brissac, director of the Assistance et de l'Hygiène publiques au ministère de l'intérieur, by organizing a series of practical conferences on the campaign against the mosquito and malaria. Thirty-five chefs de services sanitaires, professors, etc., have been sent to Paris by the prefects to attend these conferences held by two specialists, Drs. Mesnil and Roubaud of the Institut Pasteur, in the laboratories of that institution. These conferences will be terminated by a visit of research to the habitat of mosquito larvae and an examination of practical methods of extermination.

Disposition of Suspected Cases of Tuberculosis

Dr. Louis Mourier, sous-secrétaire militaire, has decreed that hereafter every soldier with known tuberculosis should not be kept at the posts or in general hospitals. They should be sent without delay to a sanatorium, except those presenting advanced lesions—cavities—who are to be treated in the isolation wards of hospitals not specializing.

All patients in whom pulmonary bacillosis is seriously suspected should be hospitalized in the *services de triage* after consultation with the medical chief of the medical sectors. The doubtful cases, of which many are not tuberculosis and the men are able to render service, will be subjected to observation by the physicians of the *dépôts*. Depending on their general conditions, these men will be kept at rest or employed with discrimination in the open air or in work compatible with the results of the medical observation to which they are subjected.

The American Red Cross

The American Red Cross, through its agent at Berne, Mr. Charles P. Dennett, has given to the Swiss Red Cross the sum of 500,000 francs in recognition of the humanitarian work done by the Swiss on behalf of the interned allied soldiers, the civil repatriates and the *évadés* passing through Switzerland, and for the medical care and the welfare work which benefited the French, English, Italians, Serbs and others.

Mm. Ambroise Rendu and Poiry, vice presidents of the municipal council of Paris, extended the thanks of Paris to Mr. Beaty, president of the American Red Cross in France, for valuable assistance given to the *petits Parisiens à la campagne,* the work of providing country outings for Paris children.

In Memory of Pozzi

The city of Bergerac (department of the Dordogne), the native city of Professor Pozzi, has decided to name one of its principal streets in memory of the noted surgeon who died recently.

LONDON LETTER

London, July 8, 1918.

Inter-Allied Food Commission

The arrival of experts representing the allies to consider the food problem was announced in a previous letter. It has been decided that the minimal food requirements of "the average man" (weighing 154 pounds) doing average work during eight hours a day represent an energy value of 3,300 calories daily. In case it should become impossible to supply this requisite amount of food, a reduction of 10 per cent. on the foregoing figure can be supported for some time without injury to health. The commission agreed to accept Lusk's figures as to the proportion of this amount to be assigned to women and to children of different ages. The following conclusions have been agreed on: 1. To state the weights of the various foods produced in each Allied country in metric tons. 2. It is not desirable to fix a minimal meat ration in view of the fact that no absolute physiologic need exists for meat, since the proteins of meat can be replaced by proteins of animal origin, such as those contained in milk, cheese and eggs, as well as by proteins of vegetable origin. The commission, on the other hand, resolved to fix a desirable minimal ration of fat—75 gm. per average man per day. The ration will be made up of (*a*) fats of vegetable origin and (*b*) fats of animal origin. If the amount of fats of vegetable origin are insufficient for this purpose, it may be necessary to maintain a certain stock of animals to furnish this fat. 3. The commission established the "man value," that is, the number of average men equivalent to the population of each of the Allied countries. This "man value" is taken as the basis for calculating the exact amount of food which must be provided for the adequate nourishment of the total population of each country. 4. The commission considered the estimates in tons of the home productions of the soil furnished by each Allied country for the year 1918-1919. These statistics will serve as a basis for determining the amount of food available for men and for animals, respectively, in each country. 5. Each delegation, in calculating the amount of calories available for men, should assign to men the maximal possible proportion of all cereals, except oats. 6. A uniform average milling extraction of 85 per cent. for wheat should be adopted throughout the Allied countries. This extraction may vary from 80 per cent. in summer to 90 per cent. in winter, and it can apply to the United States only as regards their internal consumption, and then only in case of scarcity. 7. The methods of reserving the maximal possible proportion of the cereal production for the use of man may vary in each country. Man should always take precedence over animals in the allocation of food. If this principle be accepted in the fixing of prices, it is the prices of animal products which should be limited, rather than those of such vegetable products of the soil as may serve equally well for feeding men and animals. Thus the production of veal, pork and poultry at the expense of food available for man should be discouraged, and this is best achieved by fixing a price for those animal products which will make it unprofitable for the producer to feed them on cereals. 8. The commission reserved for its next meeting the task of examining the figures which will enable it to determine the caloric value of the home production of each of the Allied countries. The determination of this figure, compared with the needs in calories of the population of each country will enable the commission to deduce the amount of imports necessary for the maintenance of the population or the exportable surplus, as the case may be. 9. In all the Allied countries, any propaganda, having for its object the encouragement of food production and of economy in the use of food, should be organized and directed by men of science well acquainted with the subject.

The Antituberculosis Campaign

Dr. F. N. Kay Menzies, principal assistant health officer of the London County Council, speaking on the antituberculosis campaign in London, said that in England and Wales the disease killed 60,000 persons a year, and in London alone, 10,000 persons. The number of deaths, however, was less than half the number in the sixties. That was due not only to improved sanitation and nutrition, education regarding the infectious nature of the disease, and an improved milk supply, but also to the movement in London for the provision of special dispensaries and institutional treatment. In July, 1914, when the campaign was started, there were thirty beds in hospitals and sanatoriums for the treatment of children, and no beds for adults. The total accommodation at present was for about 1,000, namely, 800 for children and 200 for adults. Owing to the difficulty of providing fresh buildings, hundreds of discharged soldiers were waiting for treatment in sanatoriums. With regard to the future, considerable development was likely to take place in the provision of farm and garden colonies. There was also likely to be a great development in the segregation of advanced cases, and more open-air schools for children. Lastly, there was likely to be enormously improved conditions of houses and the removal of insanitary areas.

Improved Health of Trinitrotoluene Workers

The attention of the Minister of Munitions has been drawn to the great reduction that has recently occurred in the number of cases of poisoning among trinitrotoluene workers. In the six months, October, 1916, to March, 1917, there were 169 cases of serious illness, whereas in the corresponding six months of 1917-1918 there were forty-two cases; in April of this year, four cases, and in May, only one case. This result is due to close medical supervision of the workers, with improved methods of working, and the substitution of mechanical processes wherever possible. The minister, therefore, has decided that the factory medical officers, acting within their power under Rule 8 of the trinitrotoluene regulations, may permit continuous employment of persons on trinitrotoluene work. The effect of this will be a halving of the number of workers coming into actual contact with this explosive.

Baby Week

During the past week, meetings for the promotion of the health of babies, and lectures have been held all over the country. In London a mothercraft exhibition was opened by the dowager Lady Londonderry, and an address was given by Mr. Hayes Fisher, president of the Local Government Board. He had no doubt that we and our Allies would emerge triumphant from this war, but we must take care that we were well supplied with a healthy population for the future, and that the racial cradle gained a substantial victory over the racial coffin. Unless we did so, the waste places of the earth would not be peopled by our race, but by another race with a different language and ideals, a people lower in the ranks of civilization and Christianity. The birth rate everywhere was falling very heavily year by year, but we could comfort ourselves with this, that if we were producing fewer babies Germany was producing fewer still. Comparing the number of babies born in London in 1917 with the number born in Berlin (the population of London then being 4½ millions, and that of Berlin a little over 2 millions), he said that London, although its birth rate was falling, produced four babies for one baby produced in Berlin. While Hamburg had the advantage over Liverpool in having a quarter of a million more population, in 1917 Liverpool produced two babies for every baby produced in Hamburg. Taking the whole of the principal English and German towns, he noted that, while our birth rate had fallen during the war, their birth rate had fallen much more. Infant mortality in the great towns of England in 1917 was 104 per thousand live births, and in England and Wales, 97. In Germany it was something about 30 per cent. greater than in England and Wales. In 1916 the infant mortality throughout England and Wales for all the urban areas was 95; in Germany it was 133. They must encourage all local authorities to set up maternity and infant centers. He never grudged money that was spent on looking after the health of the children, for children, after all, were the greatest asset of the nation. He was waiting for the passage of the maternity and child welfare bill which would enable local authorities to obtain grants from the government equal to those they made for the hospital treatment of children up to 5 years of age. Crèches and day nurseries would be set up.

The Influenza Pandemic

As stated in my last letter, the influenza pandemic which has prevailed in most of the countries of Europe is widespread in this country. But it is not of a severe type. The deaths in one week were only ninety-six. At Middlesbrough, eleven seamen have died on one ship and four on another from pneumonia following influenza. The staffs of many businesses have been seriously depleted, and schools have had to be closed. The medical profession has been affected in two ways. The amount of work to be done has enormously increased, and at the same time several of its members have been struck down. In consequence of the shortage already existing from the war, it has proved impossible in many cases to supply a locum tenens. Some evidence has been brought forward that the present epidemic, while clinically identical with influenza, is not that disease but is due to a *different organism.* Investigation of the exudate from the upper air passages have been made by some Canadian medical officers and described in the *Lancet.* The influenza bacillus was never found, but there was always present a gram-positive organism which they consider to be the cause. Of course it has long been recognized that attacks of so-called influenza are often due to organisms other than the influenza bacillus.

Marriages

Lieut. Simon Lewis Wronker, M. R. C., U. S. Army, Rochester, N. Y., on duty at the detention camp, Camp Sherman, Chillicothe, Ohio, to Miss Lillian Selma Leight of New York City, at Rochester, N. Y., July 21.

Lieut. Sidney Baldwin Bellinger, M. R. C., U. S. Army, Council Bluffs, Iowa, on duty at Camp Greenleaf, Fort Oglethorpe, Ga., to Miss Ava C. Glenn of Council Bluffs, Iowa, July 19.

Lieut. Raymond Thornton Potter, M. R. C., U. S. Army, Ellenville, N. Y., on duty at Fort Sam Houston, Texas, to Miss Margaret R. Smiley of Minnewaska, N. Y., July 23.

Capt. William Davison Napheys, M. R. C., U. S. Army, Chicago, on duty with the American Expeditionary Forces, France, to Mrs. Alberta M. Finch of Chicago, recently.

Lieut. Raymond Cottrell Hooker, M. R. C., U. S. Army, Richmond, Va., on duty at Camp Dix, N. J., to Miss Esther Maude Cheatham of Chesterfield County, Va., June 12.

Lieut. William Latane Varn, M. R. C., U. S. Army, Cumberland, Va., on duty at Fort Oglethorpe, Ga., to Miss Eleanor Ford Digges of Richmond, Va., June 16.

Capt. Thomas Newman Davis, M. R. C., U. S. Army, Lynchburg, Va., on duty at Camp Upton, N. Y., to Miss Mary Ely Lancaster of Richmond, Va., July 6.

Asst. Surg. Talmadge Bryan Weatherly, U. S. N. R. F., Richmond, Va., on duty at Quantico, Va., to Miss Ruby Clinkscales of Richmond, Va., July 6.

Major Frank Keene Travers Warrick, M. R. C., U. S. Army, to Miss Beulah T. Pattison, both of Richmond, Va., in New York City, June 25.

Lieut. Samuel Harold Boyd, M. R. C., U. S. Army, on duty at Camp Merritt, N. J., to Miss Bessie Mae Dutton, both of Philadelphia, July 16.

Lieut. Dean Baldwin Cole, M. R. C., U. S. Army, Chilhowie, Va., to Miss Llewellyn Garland of Richmond, Va., June 29.

Lieut. Edward Turner Ames, M. R. C., U. S. Army, to Miss Ethel Miller Blanton, both of Richmond, Va., June 29.

Lieut. Edwin Paul Kennedy, M. R. C., U. S. Army, Cleveland, to Miss Miriam Tyler of Richmond, Va., July 4.

William Thomas Rainey, Badin, N. C., to Miss Merle Louise Weaver of Greensboro, S. C., June 27.

Odd Eckfelt, Kwangchow, Honan, China, to Miss Alice May Sowerby of Peking, China, May 21.

Homer Austin Stroup to Miss Anna Jones, both of Artesia, N. M., at Albuquerque, N. M., July 13.

Charles Henry Burke, Algona, Iowa, to Miss Jeannette Grissel of Davenport, Iowa, July 17.

Alexander C. Cirkler to Miss Irene Robinson, both of Minneapolis, in Chicago, July 25.

Carey E. Wamsley to Miss Stella Goetze, both of Newport, Ky., July 10.

Deaths

Christopher Tompkins, Richmond, Va.; Medical College of Virginia, Richmond, 1870; aged 70; at one time a Fellow of the American Medical Association; one of the founders and an honorary member of the Medical Society of Virginia; for six terms president of the Southern Medical College Association; deputy coroner of Richmond for two years; for many years secretary and treasurer of the Richmond Academy of Medicine; chief of the Richmond City Dispensary; lecturer on materia medica and therapeutics; assistant surgeon in obstetrics; professor of anatomy from 1880 to 1884; professor of obstetrics from 1884 to 1899, thereafter emeritus professor of obstetrics; and since 1893 dean of the faculty of his alma mater; a distinguished obstetrician; major and surgeon of the Fourth Battalion Artillery, Virginia Volunteers; died suddenly at his home, July 20.

George Edward Fell, Chicago; University of Buffalo, 1882; aged 68; a Fellow of the American Medical Association; who was the first to save human lives by means of mechanical respiration, thirty-one years ago, as the result of experiments on animals which he conducted when professor of physiology in his alma mater; who also conducted the scientific experiments which resulted in 1890 in the construction of the electric chair for use in capital punishment, and whose most recent invention was an apparatus whereby an individual may remain under water a considerable time without danger; one of the founders and at one time president of the American Microscopical Society; a Fellow of the Royal Microscopical Society of England; died at his home, July 29, from dilatation of the heart.

Thomas Neptune Gray, East Orange, N. J.; College of Physicians and Surgeons in the City of New York, 1879; aged 65; a Fellow of the American Medical Association; recording secretary of the Medical Society of New Jersey; president of the New Jersey Academy of Medicine, and vice president of the New Jersey Pediatric Society; one of the founders and once editor of the East Orange *Gazette;* a specialist in tuberculosis, and diseases of children; chief of the bureau of tuberculosis of Newark, N. J.; city physician of East Orange for several years; died at his home, July 22, from cerebral hemorrhage.

Lucien Lofton, Richmond, Va.; Southern Medical College, Atlanta, Ga., 1894; aged 46; a member of the Medical Society of Virginia; formerly president of the Virginia Coroners' Association; secretary of the Virginia Public Health Association, and president of the Seaboard Medical Association of Virginia and North Carolina, and Southside Medical Association; medical inspector to the Richmond Health Department; formerly local surgeon to the Seaboard Air Line, Southern Railway, and Atlantic Coast Line; coroner and health officer of Greensville County; died at his home, July 21, from cerebral hemorrhage.

Medical Inspector Walter Scott Hoen, Lieutenant Commander, U. S. Navy, Washington, D. C.; University of Virginia, Charlottesville, 1902; aged 40; a Fellow of the American Medical Association; who was appointed to the Navy, June 2, 1903, and was on duty with the First Provisional Brigade, United States Marine Corps, at Port au Prince, Haiti; died in that place, recently, from angina pectoris.

Howard A. Brown, Carroll, Iowa; Starling Medical College, Columbus, Ohio, 1875; aged 64; a Fellow of the American Medical Association, and once president of the Fairfield County Medical Society; for several terms a member of the village council and president of the local school board; who underwent operation for appendicitis at the Protestant Hospital, Columbus, June 29, died at his home, July 13.

James Henry Stuart, Boston; New York University, New York City, 1880; aged 67; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; treasurer of the New England Alumni of New York University; died at his home, July 17, from cerebral hemorrhage.

Enoch Pink Lawrence, Flushing, L. I., N. Y.; New York University, New York, 1880; aged 62; a Fellow of the American Medical Association; consulting physician to Flushing and St. John's hospitals, Long Island City, and physician-in-charge of St. Joseph's Orphanage; died at his home, July 26, from endocarditis.

Walter Anson Lee, Sheridan, Mich.; Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1904; aged 64; at one time a Fellow of the American Medical

Association; a member of the Michigan State Medical Society; died at his home, July 13, from malignant disease.

Joseph Carpenter Clark, Olean, N. Y.; New York University, New York City, 1885; aged 69; formerly a member of the Medical Society of the State of New York; surgeon in charge of the Olean (N. Y.) Hospital since 1889; died, July 22, at the home of his wife's mother in Buffalo.

Bartony T. McClure, McCurtain, Okla.; Memphis (Tenn.) Hospital, Medical College, 1892; aged 44; at one time a Fellow of the American Medical Association; died at his home, July 22, from a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Mary Dugan Ardery, Garden City, Kan.; Keokuk (Iowa) Medical College, 1891; aged 76; formerly a member of the Kansas Medical Society; who retired from practice several years ago on account of paralysis; died at the home of her daughter in Garden City, July 23.

Chesley Lanier Carter, Chatham, Va.; University College of Medicine, Richmond, Va., 1903; aged 40; at one time a Fellow of the American Medical Association; a member of the Medical Society of Virginia; died at his home, July 11, from nephritis.

Thomas S. Hawley, St. Louis; Washington University, St. Louis, 1861; aged 81; at one time a Fellow of the American Medical Association; surgeon of the Eleventh Missouri Volunteer Infantry during the Civil War; died at his home, July 25.

John Monroe Craig, Washington, D. C.; Medical College of Ohio, Cincinnati, 1866; aged 73; for three years president of the Crawford County (Ind.) Medical Society; died in the hospital of the National Soldiers' Home, Washington, D. C., July 23.

David W. Bright, Lewisville, Ark.; Kentucky School of Medicine, Louisville, 1877; aged 63; at one time a Fellow of the American Medical Association; president of the Lafayette County Medical Society in 1913; died at his home, July 22.

Thomas F. Frere, Franklin, La.; Tulane University, New Orleans, 1892; at one time a member of the Louisiana State Medical Association; also a druggist; postmaster of Franklin; died at his home, July 15, from heart disease.

Francis Edwin Whitley, Webster City, Iowa; Rush Medical College, 1881; aged 61; a Fellow of the American Medical Association; died at the home of his daughter at Fort Dodge, Iowa, July 25, from heat prostration.

William Henry Watson, Decatur, Ala.; University of Louisville, Ky., 1894; at one time a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; died at his home, July 4.

Samuel Orr Loughridge, Peoria, Ill.; Jefferson Medical College, 1866; College of Physicians and Surgeons in the City of New York, 1870; aged 79; died at the home of his son, at Germantown, Philadelphia, July 21.

Carl Elton Phelps, Los Angeles; University of Southern California, Los Angeles, 1906; aged 40; died at his home, July 15, from the effects of poison, self-administered, it is believed, with suicidal intent.

Charles Walton Sanders, New York City; College of Physicians and Surgeons in the City of New York, 1878; aged 71; a member of the Medical Society of the State of New York; died at his home, July 22.

Alfred Kane Follett, Granville, Ohio; Starling Medical College, Columbus, Ohio, 1882; aged 60; while working on his farm near Granville, July 23, was struck by lightning and instantly killed.

Frederick Rowland Marvin, Albany, N. Y.; College of Physicians and Surgeons in the City of New York, 1870; aged 70; *well known as a writer and clergyman*; died at his home, July 22.

Ruth A. Young, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1918; aged 32; died in the Woman's College Hospital, July 20, after a surgical operation.

John Huntington, Starbuck, Wash.; University of Oregon, Portland, 1891; aged 67; at one time a member of the Washington State Medical Association; died at his home, July 14.

S. B. Emerson, Port Washington, Ohio; Medical College of Ohio, Cincinnati, 1869; aged 75; died at the home of his sister in Cleveland, July 6, from disease of the intestine.

George Calder, Claysville, Pa.; Eclectic Medical College of Pennsylvania, Philadelphia, 1870; aged 83; died at the home of his daughter in Washington, Pa., July 27.

The Propaganda for Reform

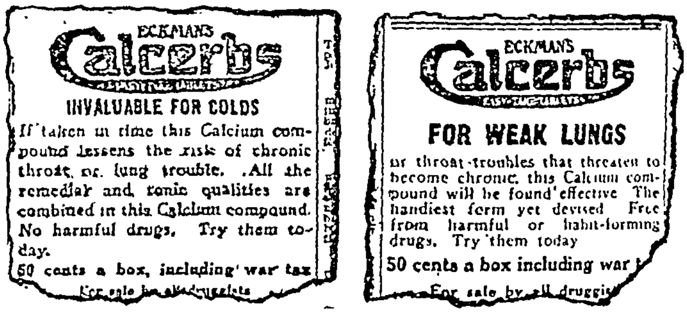
IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ECKMAN'S CALCERBS

"Eckman's Calcerbs" is put out by the same concern as that which exploits "Eckman's Alterative" and is advertised for the same conditions. "Eckman's Alterative," as some of our readers will remember, was an alleged consumption cure which the A. M. A. chemists found to be essentially a mixture of alcohol, calcium chlorid and cloves, and which was sold under such claims as:

> "A medicine made for the cure of tuberculosis. It has cured this disease again and again."
>
> "Cures have been effected . . . where no intelligent care was taken of the patient, where money was scarce; good food and good cooking unusual."

In due time the federal authorities got around to this nostrum, declaring that the curative claims made for it were false, fraudulent and misleading. The government charged that, while Eckman's Alterative was sold as a preventive for pneumonia "in truth and in fact said article of drugs could not be so used" and that while the manufacturers claimed that it would cure tuberculosis "in truth and in fact said article of drugs would not cure tuberculosis or consumption." The courts sustained the government's contention and condemned the product, whereupon the Eckman concern carried the case up to the Supreme Court of *the United States and attacked the constitutionality* of the Sherley Amendment of the Food and Drugs Act. The Sherley Amendment prohibits false and fraudulent therapeutic claims. Fortunately, the United States Supreme Court upheld the lower court. In answering the contention of the Eckman concern that Congress had no right to "prevent a person from making statements or claims concerning the virtue of drugs, whether modest or extravagant" the Supreme Court said:


ECKMAN'S
Calcerbs
INVALUABLE FOR COLDS
If taken in time this Calcium compound lessens the risk of chronic throat or lung trouble. All the remedial and tonic qualities are combined in this Calcium compound. No harmful drugs. Try them today.
50 cents a box, including war tax
For sale by all druggists

ECKMAN'S
Calcerbs
FOR WEAK LUNGS
or throat-troubles that threaten to become chronic this Calcium compound will be found effective The handiest form yet devised Free from harmful or habit-forming drugs. Try them today
50 cents a box including war
For sale by all druggi

Typical advertisements of Eckman's Calcerbs.

"We find no ground for saying that Congress may not condemn interstate transportation of swindling preparations designed to cheat credulous sufferers and make such preparations, accompanied by false and fraudulent statements, illicit with respect to interstate commerce, as well as, for example, lottery tickets."

So much for the "Alterative." "Calcerbs" are not frankly sold as a "cure for consumption"; yet as an appeal to the consumptive "Calcerbs for weak lungs" is, doubtless, just as alluring and just as potentially dangerous.

> "If taken in time this calcium compound lessens the risk of chronic throat or lung trouble."
>
> "All the remedial and tonic qualities are combined in this calcium compound."

The purchaser of Calcerbs learns, from the leaflet that accompanies the preparation, that *it is for* the treatment of "Coughs and Colds, Asthmatic, Catarrhal and Pulmonary Troubles, Weak Lungs, and as a Tonic." One page of the leaflet consists of what purport to be "Some Interesting Comments on Calcium (Lime) Treatment." The "comments" are quotations from various medical journals regarding the therapeutic value of calcium salts. Of course no comments of an unfavorable character are quoted.

Because of the number of inquiries regarding Calcerbs the Association's chemical laboratory was asked to analyze this product. The report follows:

LABORATORY REPORT ON CALCERBS

"Three original boxes of 'Calcerbs' were purchased on the open market by the Chemical Laboratory. Within the box of tin, sealed by means of adhesive tape, was a waxed-paper bag, containing forty white-coated tablets. The average weight of each tablet was 0.83 gm. (12.9 grains). Test indicated that the tablets contained approximately 20 per cent. of calcium chlorid, the hygroscopicity of which explains the use of a tightly protected package in order to exclude moisture. The tablets were also found to contain calcium carbonate, an emodin-bearing (laxative) drug such as aloin, with sugar and a flavoring of cloves. No iodids, alkaloids or heavy metals were found."

It is not necessary to tell physicians that "Calcerbs" are just as impotent to cure tuberculosis as is "Eckman's Alterative." As The Journal has so many times said, the fundamental viciousness of "consumption cures" lies not so much in the valuelessness of their composition as in the fact that their advertisement leads sufferers to abandon or ignore the hygienic and dietetic measures which hold the only hope. That some physicians have recommended calcium salts in pulmonary tuberculosis, based on the unproved supposition that consumption is due to lime deficiency, is no excuse for a "patent medicine" concern putting out calcium chlorid either in liquid or tablet form under thinly veiled claims that will lead the public to infer that the preparations will cure consumption.

KATHARMON

Report of the Council on Pharmacy and Chemistry

Following inquiries, the Council took up "Katharmon" for consideration and authorized publication of the following report.

W. A. Puckner, Secretary.

The Katharmon Chemical Company of St. Louis in advertising its Katharmon appeals especially to a profession whose members, should they live up to their ethical code, could not prescribe it.[1] In 1893 (when the publication of "a formula" for proprietary preparations was thought to satisfy the requirements of scientific medicine) an advertisement in The Journal of the American Medical Association gave the following "formula" for Katharmon:

> "Hydrastis Canadensis, Phytolacca Decandra, Acid Salicylous C. P. (from Oil of Wintergreen), Acid Boric C. P., Mentha Arvensis, Thymus Vulgaris, Dist. Ext. Hamamelis Virg. Conc."

In 1907 an advertisement in the Kansas City *Medical Index-Lancet* declared that:

> "Katharmon represents in chemical combination the active principles of Hydrastis Canadensis, Gaultheria Procumbens, Hamamelis Virginica, Phytolacca Decandra, Mentha Arvensis, Thymus Vulgaris, with two grains C. P. Boric Acid to each fluid drachm."

Now the advertisements which appear in some medical journals state:

> "KATHARMON represents in combination Hydrastis Canadensis, Thymus Vulgaris Mentha Arvensis, Phytolacca Decandra, 10½ grains Acid Borosalicylic, 24 grains Sodium Pyroborate to each fluid ounce of Pure Distilled Extract of Witch Hazel."

A comparison of these so-called formulas shows that they have not only varied from time to time, but that in no instance was a quantitative statement with regard to all the asserted ingredients given.

The Chemical Laboratory of the A. M. A. reports: Katharmon has an alkaline reaction and therefore cannot contain boric acid, salicylic acid or "borosalicylic acid" (the latter is unknown to medical literature except as loosely applied to a simple mixture of boric and salicylic acids). The solution gives tests for sodium, borate, and salicylate and therefore probably contains sodium borate and sodium salicylate. Examined by the methods used for the determination of hydrastin in goldenseal preparations, a residue giving only a faint test for alkaloid was obtained; if present at all, hydrastis canadensis (goldenseal) is there only in very small amounts.

A circular wrapped with the trade package of Katharmon contained the following, palpably unwarranted, claims:

> "Internally it is very useful in acute indigestion, Gastric Catarrh, Diarrhoea and Cholera Infantum."
>
> ". . . it has demonstrated its remarkable curative *effects, not* only in preventing unhealthy conditions of fresh wounds, but also in correcting the decaying of putrefactive processes peculiar to the body under certain circumstances. It has, further, a remarkable efficacy in surface inflammations, whether produced by accident or disease, and is an indispensable remedy in the affections of the mucous membranes of the nose, mouth, stomach, bowels, vagina, uterus, urethra, bladder and rectum."

Katharmon is in conflict with Rules 1 and 4 of the Council on Pharmacy and Chemistry because of its indefinite and secret composition and the method of advertising it indirectly to the public; it is in conflict with Rules 10, 6 and 8, in that it is an irrational shotgun mixture sold under unwarranted therapeutic claims and under a name nondescriptive of its composition.

Correspondence

"PREOPERATIVE PURGATION"

To the Editor:—The contribution made to this subject by Peet (The Journal, July 20, 1918, p. 175) and the subsequent editorial (July 27, p. 283) are quite in line with what I have been teaching for some years. When I was working out the principles of the fourth era of surgery, the physiologic era, in which the patient is to be left as largely as possible to his own resources, it became apparent that the purging of a patient in advance of operation had no good philosophy behind it, as a rule. Furthermore, the patient suffered a certain amount of loss of water and resistance as a result of the purgation.

It was observed that patients brought in from the street with some accident bore operative procedure quite as well as ones who had been given the so-called advantage of preliminary treatment. The ergo in the case left me with the deduction that we might better leave the patient in a normal condition as far as possible when making preparation for operation. I have made an exception to the rule in cases wherein patients were habitually constipated, but have given orders simply to make sure of a fair bowel movement without the application of depleting measures. Furthermore, a cup of tea or coffee in advance of the operation sometimes gives the patient a feeling of resistance which does not belong to an empty stomach.

Robert T. Morris, M.D., New York.

IMPORTANCE OF ATTENTION TO UPPER RESPIRATORY TRACT IN ACUTE OTITIS MEDIA

To the Editor:—In Society Proceedings, The Journal, July 27, 1918, p. 307, in a report of the Lenox meeting of the American Pediatric Society, there is an abstract of a paper by Dr. Thomas S. Southworth of New York entitled "Are the Present Frequency of Acute Otitis Media and the Subsequent Mastoid Operation in Some Measure a Reproach to Pediatrics?" Accompanying it is an abstract of a discussion by eight well known pediatricians. The paper, with the discussion, is apparently intended to cover, in a general way, the prevention and treatment of acute middle ear inflammation and the prevention of mastoid involvement.

I am pained beyond expression to observe that, so far as these abstracts are concerned, there is not a single instance of the mention of the most important consideration in the care and prevention of these cases, which is careful attention to the upper respiratory tract, with especial reference to nasal and postnasal obstruction and infected and diseased tonsils.

It may be taken for granted, of course, that every one of these nine gentlemen is thoroughly familiar with this fact;

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[1] ". . . it is equally unethical to prescribe or dispense secret medicines or other secret remedial agents, . . ." Sec. 6, Art. I, Chapter II, *Principles of Medical Ethics.*

but it is strange that not one even mentioned it, according to the general abstracts. I mention the matter merely because I believe this is one of the most important subjects in pediatrics, and I think it would be unfortunate, indeed, if the profession as a whole, in reading a report of this kind, should be unconsciously led into minimizing a point in the care and prevention of these cases which I believe to be paramount.

J. W. Jervey, M.D., Greenville, S. C.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MENTAL HYGIENE SOCIETIES AND INSTITUTIONS

To the Editor:—The Division of Mental Defect and Delinquency, State Board of Charities, State of New York, has been anxious to perfect its mailing list and finds that it is unable to locate the name, title and address of the individual or commission at the head of the Problem of Mental Defect in each state in the United States. Does such a list exist, and if so, do you know where we can find it? Any information given us along this line will be greatly appreciated, as we wish to send such individuals or commissions information and other bulletins relative to the problem of the care and treatment of mental defectives and wish our work to be placed where it will be most appreciated.

Chester L. Carlisle, M.D., New York.
Superintendent, Division of Mental Defect and Delinquency.

Answer.—In "Mental Hygiene," published by the National Committee for Mental Hygiene, 50 Union Square, New York, in the issue for January, 1918, there is a "Directory of Societies and Committees for Mental Hygiene." In the same journal for January, 1917, in connection with an article by W. E. Fernald, there is a "List of Public Institutions for the Feebleminded and the Epileptics in the United States."

MAMMALA

To the Editor:—Have you on record the contents of a so-called dry milk, "Mammala," put on the market by the Mammala Company, 120 Liberty Street, New York? On the label the analysis is given as proteids, 24 per cent.; butter fat, 12 per cent.; milk sugar, 54 per cent.; milk salts, 5 per cent., and moisture, 5 per cent.

Can you let me know whether this is approximately correct?

M. Howard Fussell, M.D., Philadelphia.

Answer.—Mammala is a dried milk powder manufactured by the Mammala Corporation. It may be considered as a partly skimmed milk, dried by a patented process, to which lactose (milk sugar) is added to make up for the deficient food units caused by the partial removal of the cream.

The Connecticut Agricultural Station has recently analyzed Mammala, with these results:

	Declared	(Basis 12% Solids) Calc.	Found	(Basis 12% Solids) Calc.
	Ounces		Ounces	
Net weight	12.33	.....	12.75	.....
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Protein (N×6.38)	24.00	3.03	25.78	3.22
Fat	12.00	1.51	14.52	1.82
Ash	5.00	0.63	5.75	0.72
Lactose	54.00	6.83	49.90	6.24
Moisture	5.00	88.00	4.05	88.00
Starch	None		None	
Sucrose	None		None	

"The product exceeds the claim in protein, fat and ash. It is somewhat lower than the claim in lactose and moisture.

"Reduced to a basis comparable with cow's milk, 12 per cent. solids, it appears that the protein and ash are normal, the fat low and the milk sugar high. In other words, the claims as regards the composition are substantiated."

GOETSCH TEST FOR HYPERTHYROIDISM

To the Editor:—Can you give me details of a test for hyperthyroidism by the use of epinephrin hypodermically in conjunction with blood pressure? I think it is called by some such name as "Gatz" or "Levy Gatz" test.

Howard S. Allen, M.D., Woodbury, Conn.

Answer.—The test referred to is that called "skin reaction of Goetsch." Eight minims of a 1:1,000 solution of epinephrin are diluted with an equal quantity of sterile water and injected hypodermically into the arm. Immediately there is formed an area of blanching around the point of injection, and about the margin of this usually a red areola gradually shading off into the surrounding tissue. In about half an hour the center of the white area becomes bluish gray to lavender, and at the end of about one and a half to two hours the red areola takes on the bluish or lavender color, while that in the center disappears. This lavender areola remains for about four hours from the time of injection and is the most characteristic part of the test. Accompanying the local reaction may be increase in pulse rate with palpitation of the heart and an exaggeration of the tremor and nervous symptoms in general.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

Hawaii: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

Iowa: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Massachusetts: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.

Oklahoma April Examination

Dr. J. J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 9-10, 1918. The examination covered 18 subjects and included 130 questions. An average of 70 per cent. was required to pass. Of the 19 candidates examined, 18, including 2 osteopaths, passed, and 1, an osteopath, failed. Sixteen candidates were licensed through reciprocity, and 5 candidates were granted osteopathic reciprocity licenses. Eight candidates, including 1 nongraduate, were granted reregistration licenses. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Northwestern University	(1906)	87
University of Michigan Homeo. Med. School	(1901)	91
University of Oklahoma	(1918)	86, 87, 87, 87, 88, 88, 88, 89, 89, 90, 90, 91, 93.
Meharry Medical College	(1917)	84

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Arkansas Industrial University	(1897)	Arkansas
University of Arkansas (1905) (1910) (1911) (1915)	(1917)	Arkansas
Atlanta College of Physicians and Surgeons	(1913)	Georgia
Kentucky School of Medicine of Louisville	(1893)	Missouri
	(1894)	Kentucky
Lincoln Medical College	(1902)	Nebraska
University of Nebraska	(1916)	Nebraska
Eclectic Medical Institute	(1898)	Tennessee
Ohio Medical University	(1901)	Ohio
University of Nashville	(1909)	Mississippi
University of Tennessee	(1885)	Kentucky
Southern Methodist University	(1913)	Texas

Arkansas May Examination

Dr. T. J. Stout, secretary of the Arkansas Board of Medical Examiners, reports the written examination held at Little Rock, May 14-15, 1918. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 40 candidates examined, 38 passed and 2 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Total No. Licensed
College of Physicians and Surg., Little Rock	(1909)	1
University of Arkansas	(1906) (1918, 20)	21
Atlanta School of Medicine	(1908)	1
Tulane University	(1915)	1
St. Louis University	(1918)	1
Meharry Medical College	(1918)	5
Memphis Hospital Medical College	(1899) (1903) (1912)	3
University of Tennessee	(1917) (1918, 3)	4
Vanderbilt University	(1890)	1
FAILED		
University of Arkansas	(1912)	1
Meharry Medical College	(1917)	1

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Tulane University	(1917)	Louisiana
Woman's Medical College of Pennsylvania	(1916)	Penna.
Meharry Medical College	(1917)	Tennessee
Memphis Hospital Medical College	(1913)	Texas
University of Tennessee	(1916)	Mississippi

Book Notices

AUTOINTOXICATION OR INTESTINAL TOXEMIA. By J. H. Kellogg, M.D., LL.D., F.A.C.S., Medical Director of the Battle Creek Sanitarium. Cloth. Price, $2.50. Pp. 342, with illustrations. Battle Creek, Michigan: The Modern Medicine Publishing Co., 1918.

This book begins with a discussion of the effect of bacteria on the body, their methods of propagation in the body, and the body's defense against them, following which is a discussion of the effect that various toxins developed in the intestine have on the body functions, and of methods of determining for examination of the feces the extent of damage being done. The treatment of these conditions and the changing of the intestinal flora is chiefly dietary and is discussed under the headings of "milk regimen, fruit regimen, fasting regimen," the antitoxic diet, and accessory treatment which includes chiefly massage, exercise and baths. In the milk regimen, the author advises the taking of large quantities of milk. He gives the milk at twenty-four feedings every half hour from 7 a. m. to 7:30 p. m. The amount depends on the capacity of the patient, varying from 3 to 6 quarts a day. It is taken in a definite quantity at a definite time, at alternate feedings, sour milk or that fermented by the Bulgarian bacillus being given. At two feedings, fresh fruit is given. Four times a day, bran and paraffin are given. The author believes that the normal human being should have three bowel movements a day at regular hours in order not to be constipated. This is achieved through the diet described.

Following the discussion of the milk regimen, he considers its application to various diseases in which he regards it especially beneficial. With the fruit regimen, the patient takes four meals a day of any kind of fresh fruit, 1 ounce of bran and 1 ounce of paraffin oil, better called liquid petrolatum. If the patient desires, a mixture of equal parts of oatmeal, cornmeal and sterilized bran may be made into a porridge and taken twice a day; if this cannot be taken, agar-agar may be used instead. The author then considers the conditions in which this diet is especially beneficial. The closing chapter is devoted to the subject of milk. It is entitled "Milk the Most Remarkable of Foods," and is in reality the best thought with which to leave the reader of the book. It is quite likely that in the proper cases, the methods advocated by Dr. Kellogg if correctly carried out will result satisfactorily.

The first sections of the book up to the beginning of the discussion on milk regimen are subject to the criticism that they are a little too technical for the average layman and not sufficiently technical for the average physician. Physicians who know of the work at Battle Creek and of the methods used by Dr. Kellogg will realize that these methods are peculiarly sanatorium methods and possibly will not be equally adaptable to general practice.

CHEMICAL PATHOLOGY. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Professor of Pathology in the University of Chicago. Third edition. Cloth. Price, $4.25 net. Pp. 707. Philadelphia: W. B. Saunders Company, 1918.

It is now three years since the second edition of this valuable book was issued; but in spite of the war the study of the chemical problem of disease has been so active that the additions to our knowledge made it necessary to reprint the book. The chapters on gout, immunologic specificness, anaphylaxis, icterus, acidosis, diabetes and uremia have been rewritten practically altogether, and new chapters or sections have been added on the Abderhalden reaction, chemical basis of growth, atrophy and the pressor basis. While the more recent publications of certain foreign countries have not been accessible, abstracts of most of them have been, so that it is fair to say that all or nearly all of the important literature concerned has been laid under contribution. The presentation is clear, logical and scholarly, and a judicial attitude is maintained throughout. As in previous editions, references are made to the more important publications bearing on the subjects discussed; hence the book is a reliable guide to the literature. The amount of industry bestowed on this work is very great indeed, and the result is a book the place of which can be taken by no other book in the English or any other language if one is seeking for a clear, competent and complete discussion of chemical pathology.

THE PRINCIPLES OF HYGIENE. A Practical Manual for Students, Physicians and Health Officers. By D. H. Bergey, A.M. M.D., Dr.P.H., Assistant Professor of Hygiene and Bacteriology, University of Pennsylvania Sixth edition. Cloth. Price, $3.50 net. Pp. 543, with 63 illustrations. Philadelphia: W. B. Saunders Company, 1918.

The sixth edition of this well known manual continues to embody the features that have recommended it since its first publication. It is always difficult in such a work to keep the pages abreast of current progress. We note (page 117) that the discussion of the New York water supply is somewhat antiquated, no reference being made to the new Catskill system. Again we find (page 125) that the continuous process of sand filtration is said to be in use at Hamburg, although it has been many years since that city resorted to ground water sources. The latest report of the Committee of the American Public Health Association on Standard Methods of Water Examination does not seem to have been consulted in formulating the discussion of bacterial examination of water on pages 148 and 149. The paragraphs on Rocky Mountain spotted fever (pages 416-418) are quite out of date. A few instances of careless diction may be noted, although in general the author's meaning is clear and his treatment concise. On page 323 we note a curious use of *lazareth helfer* in place of the common English equivalent. A more thorough revision of the whole work would increase its usefulness.

MODERN UROLOGY IN ORIGINAL CONTRIBUTIONS BY AMERICAN AUTHORS. Edited by Hugh Cabot, M.D., F.A.C.S., Chief of the Genito-Urinary Department of the Massachusetts General Hospital. Volume I, General Considerations—Diseases of Penis and Urethra—Diseases of Scrotum and Testicle—Diseases of Prostate and Seminal Vesicles. Pp. 744, with 375 illustrations. Volume II. Diseases of the Bladder—Diseases of the Ureter—Diseases of the Kidney. Pp. 708, with 274 illustrations. Cloth. Price, $14. Philadelphia: Lea & Febiger, 1918.

These two volumes will be found useful and valuable as a standard reference work on the subject of urology. One only needs to look over the list of contributors to know that each subject is covered by an authority. It lacks the smoothness found in a work by a single author, but this is necessarily unavoidable in a correlated set of monographs. For this reason it is most valuable as a reference work for those interested in urology, and not as a textbook for the student. The numerous engravings and plates are very instructive, and the bibliographies at the end of each chapter are extremely useful. In the preface the editor calls attention to the importance and rapid advancement of urology, and states that this specialty stands today in America, at least on a par with the position it has made for itself abroad. One can safely state that the work accomplishes its intention, namely, that "it gives articular expression to American urology."

SURGEON GROW, AN AMERICAN IN THE RUSSIAN FIGHTING. By Malcolm C. Grow. Cloth. Price, $1.50 net. Pp. 304, with illustrations. New York: Frederick A. Stokes Company. 1918.

Dr. Malcolm C. Grow went to Russia in 1915 to work for the Red Cross. He became a lieutenant-colonel [corresponding in rank to major in our army] in the medical department of the Russian army, and was christened in true Russian style Malcolm Alvaovitch Grow. He is now a major in our own Medical Reserve Corps. Dr. Grow's book is not a description of medical organization or a treatise on the care of the wounded; it is a thrilling account of adventure, of attack and retreat, of betrayal through German intrigue, of the spirit of a simple and long suffering peasant people under most adverse conditions. At the same time trench conditions are pictured with much of what Irvin Cobb calls "the essence of the trenches," a rather grim, yet high-spirited humor. Dr. Grow was several times wounded, and received the medal of St. George from the hands of the Grand Duke. While the book was not written especially for them, physicians will find this experience of a surgeon in Russia of special interest at the present time.

Medicolegal

Liability Under Agreement to Cure

(Frankel v. Wolper (N. Y.), 169 N. Y. Supp. 15)

The Supreme Court of New York, Appellate Division, Second Department, affirms a judgment dismissing the complaint in this case on the ground that it did not declare on contract, but was for malpractice and was on that account barred by a statute of limitations, whether the cause of action arose from lack of requisite skill or negligent exercise of it. The complaint alleged in effect representations by the defendant of skill and carefulness in his calling; the plaintiff's reliance thereon in entering into a contract with the defendant "to attend to and cure her of" her malady; that in violation of the contract the defendant used neither the agreed care and diligence in the exercise of his skill and application of his learning in treating the plaintiff, nor his best judgment, nor the approved methods, and lanced the plaintiff's affected breast dilatorily and improperly, improperly drained it, made too frequent changes of bandages, and did not properly sterilize the bandages and instruments, etc., and it might be inferred from the complaint that the plaintiff's physical condition was affected permanently (1) by the defendant's negligent treatment; (2) by operations by others, necessitated by the defendant's failure to cure her; (3) by the continuance of her malady, and that she had expended sums of money in endeavoring to be cured.

The defendant, the court says, would not be liable on his agreement to cure for the plaintiff's pains and disability resulting from the conditions to be cured, nor for pains and disabilities caused by the defendant's ignorance or lack of skill, nor for pains and disabilities caused by subsequent operations to cure her of her malady, or to avert the consequences of the defendant's lack of skill or failure to perform his contract, nor expenses to alleviate any such pains and disabilities. The contract to cure was not that the defendant would, on failure, pay the damages resulting from her malady continuing, or for the results of his lack of skill or ignorance, or for the physical consequences of treatment by other physicians necessitated by her condition. The thing he undertook was to cure her. That did, indeed, involve the elimination of the condition that begot suffering and disability. But a physician cannot be held responsible for suffering from a cause which he agrees to end, but does not, unless he is guilty of malpractice. He must have skill, care and judgment, and use them; and if he fail to use them, and pain results therefrom, whether there be or not ultimate cure, he is liable. That culpability results from the duty the law attaches to the undertaking.

The court would say, also, that where a physician, with whatever prudence, agrees that his treatment will cure, and it does not, the patient is absolved from payment, may recover advances, may recover expenditures necessitated for nurses and medicines, and maybe for something else. But such were not the damages stated here. If the complaint otherwise permitted a conclusion that the action was on contract, the misstatement of damages need not disturb it. But here the damages alleged were unsuited to an action on contract, and helped to characterize the complaint as one for malpractice and negligence.

Valid Resolution to Enforce Vaccination

(Staffei et al. v. San Antonio School Board of Education et al. (Tex.), 201 S. W. R. 413)

The Court of Civil Appeals of Texas upholds, by affirming a decree that denied the plaintiffs a temporary injunction against the enforcement of, that portion of a resolution of the board of education which instructed the superintendents and teachers of the schools of the San Antonio independent school district to refuse admission to the schools of said district, and to prevent further attendance thereat, of children not complying with the vaccination ordinance of the city of San Antonio. The particular part of the city vaccination ordinance referred to was:

> No child or other person shall be permitted to attend any of the public schools, or any place of education within this city, unless such child or other person shall first present a certificate from some duly qualified physician to the city physician that such child or other person has been successfully vaccinated within six years preceding the time at which such child or other person desires to attend school.

The court holds that the resolution was authorized by the San Antonio independent school district charter, which provided that the management and control of the said school district should be vested in nine trustees, who should be called the San Antonio board of education, and, in another section, said, "The board shall establish, manage and control all public free schools within said district." By these charter provisions the legislature, so far as it could, delegated to the San Antonio board of education the authority to control and manage the public schools in San Antonio. The words "manage and control" conferred the authority on the board to prescribe rules by resolution for the qualifications of children for admission into the San Antonio public free schools. This authority to prescribe the qualifications included the authority to prescribe vaccination as a condition precedent, provided, of course, the requirement was not unreasonable. Nor was that charter provision rendered ineffective by the constitutional guaranty that no citizen of the state should be deprived of privileges except by the due course of the law of the land.

The board of education by its resolution did not undertake or intend to compel the children to be vaccinated. It claimed no such power. The board undertook only to control the schools under its jurisdiction. The resolution did not prevent the children from attending the schools; it was their own consciences, beliefs and convictions that did. Furthermore, the privilege of having children admitted to the public free schools is a creation of the statute, and can be changed by statute.

The argument that the resolution of the board excluded the unvaccinated children from the public free schools in San Antonio and subjected them and their parents to the pains and penalties of the compulsory education law had no bearing on the case before the court, and would not be discussed further than to reply that the control of the schools in San Antonio was given by law to the San Antonio board of education, and not to individual parents, no matter how correct their consciences, convictions, faith and religious beliefs might be. The court may add that such a regulation has been held a valid defense to a prosecution under a compulsory education law. *State* v. *Turney,* 31 Ohio Cir. Ct. R. 222. However, the court must not be understood as passing on any such question here.

In this case there was no finding of facts. No evidence was heard. But the sworn answer of the defendants alleged that there was smallpox in the city and within the school district; that there was danger of its spreading, and that the best way to prevent this was to vaccinate the children attending the public schools, etc. These allegations warranted holding the resolution a reasonable exercise of power, and justified denying the temporary injunction.

Loss of Lens of Eye Not Loss of Eye

(Frings v. Pierce-Arrow Motorcar Co. (N. Y.), 169 N. Y. Supp. 309)

The Supreme Court of New York, Appellate Division, Third Department, in answer to a question certified by the state industrial commission, holds that the loss of the lens of an eye is not the loss of an eye, within the contemplation of the workmen's compensation law. The court says that, unquestionably, when the lens of the eye was destroyed, the use of the eye, unaided, was lost. It was only by providing an artificial lens outside the eye that the image could be so thrown on the retina as to restore the sight. The retina was not destroyed, and through the use of an artificial lens the eye, so far as its use alone was concerned, could fulfil the natural function of an eye. The claimant had permanently lost the use of the eye, when so supplemented, to the extent only of using it in conjunction with the other eye, which he could not do, owing to the lack of coordination of images. Should he lose the other eye, he would be able, using the injured eye, aided by a lens, fully to perform his duties.

Using Roentgenogram of Normal Foot for Comparison

(Bruce v. Western Pipe & Steel Co. (Calif.), 169 Pac. R. 660)

The Supreme Court of California says that the plaintiff in this personal injury case was allowed to introduce in evidence a roentgen-ray picture of a normal foot, for illustration, and to enable the jury to compare the same with the condition of the plaintiff's foot after the injury. This was not error. The fact that the roentgenogram was taken in the absence of the defendant, or without the knowledge of the latter, did not of necessity affect the propriety of this evidence. It was not claimed that the picture of the normal foot was inaccurate.

Society Proceedings

COMING MEETINGS

Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Colorado State Medical Society, Estes Park, Sept. 9-11.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Kentucky State Medical Association, Louisville, Sept. 3-6.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Roentgenology, New York

June, 1918, 5, No. 6

1 Apparatus for Quick and Accurate Localization on Screen. J. M. Davidson, London, England.—p. 275.
2 Roentgenology in Warfare. J. H. Edwards, Birmingham, England.—p. 280.
3 Instrument for Rapid Fluoroscopic Foreign Body Localization by Combined Parallax and Double Ring Methods. E. S. Blaine, New York.—p. 288.
4 Appendix with Especial Reference to Peristalsis. M. J. Hubeny, Chicago.—p. 293.
5 Postroentgen Treatment of Carcinoma of Breast. R. H. Boggs, Pittsburgh.—p. 301.
6 An Inexpensive Head Vise. C. C. Thomas, Ann Arbor, Mich. —p. 304.

Archives of Internal Medicine, Chicago

July, 1918, 22, No. 1

7 *Blood in Shock. C. C. Guthrie. Pittsburgh.—p. 1.
8 *Ligation of Coronary Arteries with Electrocardiographic Study. F. M. Smith, Chicago.—p. 8.
9 *Clinical Registration of Cardiac Murmurs by Direct Method. C. J. Wiggers, New York.—p. 28.
10 *Prevention of Simple Goiter in Man. O. P. Kimball and D. Marine, Cleveland.—p. 41.
11 *Clinical Significance of Abnormally Wide Ventricular Deviation in Electrocardiogram. S. Neuhof, New York.—p. 45.
12 Value of Tests of Kidney Function. L. F. Frissell and K. M. Vogel, New York.—p. 56.
13 *Studies on Renal Function During and Immediately Following Some of Acute Infectious Diseases. C. Frothingham, Boston. —p. 74.
14 Alkaptonuria; Report of Case. S. S. Schochet, Chicago.—p. 82.
15 *Occlusion of Entire Inferior Vena Cava by Hypernephroma, with Thrombosis of Hepatic Vein and Its Branches. V. C. Jacobson and E. W. Goodpasture, Boston.—p. 86.
16 *Alimentary Renal Glycosuria; Report of Case. K. Goto, New York.—p. 96.
17 Gastric Lesions Observed in Experimental Bacteremia. J. W. McMeans, Pittsburgh.—p. 114.

7. **Blood in Shock.**—In an investigation of experimental shock in dogs, the blood was studied by Guthrie to determine if such alterations occurred in the type of shock induced, and if there was a causal relation between blood change and shock. In the condition investigated, alterations in blood volume causatively were unimportant. Evidence of entrance of liquid into the blood was obtained.

8. **Ligation of Coronary Arteries.**—This article is based on a study of sixty-six dogs in which known myocardial lesions had been produced by the ligation of definite branches of the coronary arteries of the heart. The mortality following the ligation of the ramus descendens anterior sinister was 9 per cent. Where in addition one or more small branches of the ramus circumflexus sinister were ligated the mortality was increased to 50 per cent. This was about the same as that from the ligation of either the main trunk of the ramus circumflexus sinister of the right coronary artery, which was 57 per cent. and 54 per cent., respectively. The mortality following the ligation of the first lateral branch of the ramus descendens anterior and either the large anterior or posterior descending branch of the ramus circumflexus sinister was 37.5 per cent. These figures approached those obtained from the ligation of the ramus circumflexus sinister or the right coronary artery, yet the area supplied with blood by the last named arteries far exceeds that supplied by the former. Even though the area supplied with blood in the former is less, the papillary muscles are involved, which perhaps may be the explanation for the high death rate. One fact, strikingly brought out, was that where a lesion was brought about by ligation of the left coronary artery, the softening or fibrosis involved to a much greater extent the endocardial and subendocardial structures than the subpericardial or the body proper of the myocardium. This was true in two cases in man with coronary artery occlusion which Smith and his associates had the opportunity of observing while the work was going on.

As to anastomosis, these observations led to the belief that while the degree of anastomosis is variable, there must often be a fairly free communication between the branches of the right and left arteries or between the smaller branches of the same artery. Otherwise it is difficult to explain the survival of dogs where extensive ligation has been made, the variations in extent of the lesions produced by the obstruction of the same vessel and the comparatively small size of the lesion which frequently results from the occlusion of a large artery. Four dogs in which the ramus circumflexus sinister was ligated, developed, within forty minutes, tachycardia which ended in ventricular fibrillation and death. Ventricular fibrillation was observed in six cases. In four instances this abnormal rhythm was preceded by tachycardia and in the remaining two by auricular fibrillation and auricular flutter. Ventricular fibrillation in the dog invariably ended in death. The early exaggeration of the T-wave, its marked negative drop below the line within twenty-four hours and its more gradual return to its positive position and its final iso-electric or negative location were so characteristic in dogs watched for several days, that similar changes in the wave in man might reasonably be supposed to be due to similar lesions. In fact, one case in man, which will be reported later, was observed in which a clinical diagnosis of coronary thrombosis was made which was verified later at necropsy. The T-wave of the electrocardiogram of the patient ran a course similar to that of the dogs previously described. In other cases believed to be coronary thrombosis similar changes in the electrocardiogram have been seen but no verification of the diagnosis has been made, the patients either living or no necropsy having been obtained.

9. **Registration of Cardiac Murmurs by Direct Method.**—According to Wiggers a presystolic murmur may accompany a variety of cardiac conditions. It is most clearly recognized in cases of mitral stenosis in which the auricle continues to contract regularly and efficiently. In such cases the murmurs increase in intensity and end in a characteristic snapping first sound from which alone the diagnosis may sometimes be made. The vibrations responsible for this murmur

and condition of nutrition were, to all appearances, similar to the conditions found in animals necropsied after fatal results on the diet of oats and milk. The feces were dark colored, and the amount of putrefaction was much less than that found in animals which had been on the diet yielding feces of less bulk. The amount of distention was also much less; the appearance of the cecum, colon and ileum was not especially abnormal. The consistence of the stools altered but little during the period of observation. Administration of laxatives after the onset of signs of scurvy benefited these animals also.

It is not evident why, if scurvy in the guinea-pig is due primarily to impaction of feces in the delicate cecum, the pigs on a diet of oats and hay should develop the disease, when the degree of impaction is at least much less than that seen in animals on a diet yielding pasty feces, and the character of the feces not especially abnormal. It is obvious that the poorly balanced diet leads to malnutrition, and it may be that absorption of toxins and bacteria from the intestinal tract may be attributed more directly to that factor, which probably involves the intestinal mucosa quite as much as other tissues. The presumption that a certain degree of the inspissation of the feces is due to a late or terminal feature of the disease seems to be borne out by the fact that the feces of animals killed before the very last stage of the disease are less abnormal than those found in animals at death. During the last stage of the disease, the animals are unable to move about and to secure water, and it is possible that a certain, though probably a small, degree of the fecal condition is due to this factor. Blood cultures made on animals dying from or killed during the study were uniformly sterile. The histobacteriologic studies of the tissues have not been done as yet. The rabbits in four other pens similarly arranged, and which were on a general diet, did not do this. Whether the calcium in the whitewash had anything to do with the prevention of scurvy or malnutrition was not determined.

Bulletin of Johns Hopkins Hospital, Baltimore

July, 1918, **29**, No. 329

25 Preparation of U. S. Army Triple Typhoid Vaccine. C. G. Snow. —p. 157.
26 *Influence of Menstruation on Acidosis in Diabetes Mellitus; Report of Case. G. A. Harrop, Jr., and H. O. Mosenthal, Baltimore. —p. 161.
27 *Case of Colloid Degeneration of Skin with Unusual Histological Feature. L. W. Ketron, Baltimore.—p. 163.
28 *Sarcoma of Uterus Arising from Endometrium. L. Brady.—p. 164.
29 Pharmacologic Appreciation of Shapespeare's Hamlet; Instillation of Poisons into Ear. D. I. Macht, Baltimore.—p. 165.

26. **Influence of Menstruation on Acidosis in Diabetes Mellitus.**—A girl, aged 18, entered the hospital suffering from a very severe type of diabetes mellitus, accompanied by a marked degree of acidosis. The urine could be rendered sugar-free only temporarily by means of starvation; the acid substances in the urine were fairly high, the percentage of ammonia nitrogen of the total urinary nitrogen was well above the normal, and the carbon dioxid tension of the alveolar air was low, in spite of large amounts of bicarbonate of soda administered. The patient was thin and weak, but exhibited none of the distressing subjective symptoms that are often associated with marked acidosis and impending diabetic coma. The gravity of the situation was realized, and every effort was made to improve the girl's condition. At the end of one month, the acidosis had somewhat diminished, but the tolerance for carbohydrates had not increased at all. She was evidently one of the rare but unfortunate cases of diabetes mellitus which are not relieved by the starvation treatment. With the onset of the menstrual period, the picture changed completely. On that day she complained of abdominal pain and refused food. At 7 p. m. a change in the character of the breathing with increasing drowsiness, was noticed, and at 10 p. m. there was well marked hyperpnea; she could scarcely be aroused; there was marked involuntary twitching of the facial muscles, and the carbon dioxid tension of the alveolar air was 20 mm.

The next day the symptoms remained unchanged. On the third day the conditions improved somewhat and on the fourth day all the symptoms which had manifested themselves at the time menstruation began had disappeared. The patient was treated with large doses of sodium bicarbonate by the mouth, rectum, and intravenously, and by starvation. The effects of this therapy were satisfactory. The tests during this period, which may be regarded as one of diabetic coma, show no appreciable increase in the severity of the acidosis over that of one month previously when there were no subjective symptoms of acidosis. There is perhaps a slight tendency toward a rise in the amount of acid substances and ammonia, but no significant change occurred. The alveolar air showed a lower tension of carbon dioxid on the first day of menstruation than had previously been recorded, but here again the difference was only slight. It may, therefore, be concluded that the process of menstruation in some manner affected the body so that it was less resistant to the influences of the acid bodies and that diabetic coma resulted.

There are several other facts that point to the profound effects which were produced by the menstrual process. During the period the glycosuria and the quantity of nitrogen in the urine were both much increased. These phenomena have often been noted in so-called cases of acute diabetes. When menstruation had ceased, it was apparent that some permanent damage to the carbohydrate metabolism had occurred. The amounts of glucose excreted were somewhat higher than before, and the acidosis, as indicated by the acetonuria and the quantity of ammonia in the urine, was distinctly more pronounced. In this case of diabetes mellitus it seems justified to conclude that the menstruation was accompanied by an increase in the acidosis. The symptoms became more marked with each successive period until fatal coma occurred. The second menstrual period set in four weeks after the first. The girl was very drowsy and nauseated. Deep coma came on during the course of the day, and on the following day several general convulsions occurred. There was evidently typical air hunger. Death came about thirty-six hours after the onset of the diabetic coma, and on the third day following the beginning of the menstrual period.

27. **Colloid Degeneration of Skin.**—A typical case is reported by Ketron of the rare condition of colloid degeneration of the skin. In the histologic study, peculiar cells with granular protoplasm were found embedded in the colloid blocks. Ketron believes them to be macrophages which have phagocytosed the colloid material, because of its foreign body reaction.

28. **Sarcoma of Uterus Arising from Endometrium.**—A woman entered the hospital worried because of a lump in her breast which turns out to be, on operation, a benign tumor, but gave little attention to the recurrence of vaginal bleeding, one and a half years after the menopause, which scrapings demonstrated to be due to a very malignant growth. The case is interesting because apparently it is not a sarcoma starting from a malignant degeneration of a fibroma, as is usually the case, but one arising from the connective tissue of the endometrium. The tumor cells arose from the region where one finds the remains of the uterine glands.

Georgia Medical Association Journal, Augusta

July, 1918, **8**, No. 3

30 Value of Commission for Study and Control of Cancer. J. L. Campbell, Atlanta.—p. 45.
31 Control of Cancer. G. R. White, Savannah.—p. 47.
32 Plea for Conservation of Human Milk. W. L. Funkhouser, Atlanta.—p. 52.
33 Babies, Malaria and Quinin. W. A. Mulherin, Augusta.—p. 56.
34 Diatomaceous Earth, New Wound Dressing and Drainage Method. St. J. B. Graham, Atlanta.—p. 61.

Indiana State Medical Association Journal, Fort Wayne

July, 1918, **11**, No. 7

35 Survey of Trachoma Situation in Indianapolis. B. J. Larkin, Indianapolis.—p. 265.
36 Plea for More Conservative Obstetrics. F. E. Ablett, Indianapolis. —p. 270.
37 Focal Infection of Mouth and Accessory Sinuses in Relation to Ophthalmic Inflammations. E. E. Holland, Richmond.—p. 274.

been proved that adipose tissue, when transplanted onto any raw surface, has the property of becoming adherent to it, with little reaction or alteration in its original size. Charles has applied this practice to the knee joint in the cleaner cases for filling up a hole in the articular surface. The infrapatellar pad of fat, with the attached portion of synovial membrane, is usually convenient, and Charles has found that such a pad inserted into the bony cavity acts also as a plug in arresting the oozing of blood.

It is now a recognized fact that when the knee joint is given a fair chance it can deal with a mild infection, but not so the surrounding soft tissues; therefore it is important to close the joint completely and without tension. Beginning at the edge of the wound, the redundant synovial membrane is undermined from its attachments to the soft tissues and to the condyle all round the hole; it is then closed by suture, so as to exclude the bone lesion from the joint cavity. This is also done with wounds in the suprapatellar region. Again, in rare cases, where the patella has been removed and the severely lacerated condition of the adjoining soft parts renders it absolutely necessary to close the true joint cavity, the whole of the synovial membrane from the suprapatellar pouch may be brought down and sutured to the synovialis below. A further lateral incision may be required to give access for this dissection. The wound is sutured in layers—the synovial membrane by a continuous suture of fine catgut, the capsule is brought together by interrupted sutures, and the rest of the wound closed without drainage. In any case in which there is doubt as to complete absence of infected tissue, one or two Carrel's tubes are placed under the skin, in the hope of preventing sepsis. This, however, is seldom necessary. The dressing is applied with a firm bandage and the tourniquet is then released. Finally the leg is put up in a Thomas splint.

9. **Abuse of Drainage Tubes.**—Hathaway believes that if surgeons will take their courage in both hands, and will not be frightened by a little infection, leaving it to be dealt with by the natural resistance of the tissues to infection, and will give up the use of drainage tubes, they will not only find their results very much better, but they will find their outlook on surgery totally changed. All that is necessary is to put something into the tissues which will keep a "passage" open but which does not leave an open "drain." If a passage is required to be kept open, Hathaway puts in a piece of soft folded rubber—for instance, in an appendix abscess. This allows pus to come away, but will not leave an open "drain" by which secondary infection of staphylococci, from the skin, or other organisms can gain entrance.

War surgery has taught what should be the two main principles of civil surgery: 1. Early and complete operation. 2. That secondary or mixed infection is worse than primary infection. While the tissues of the body can, if give a fair chance, deal with one infection only, if that infection becomes a mixed one by entrance of organisms from outside, then the last state is worse than the first. Applying his experience of modern war surgery Hathaway started sewing up ordinary staphylococcic abscesses of the subcutaneous tissues, after incision and wiping out with bipp, and found they healed by first intention.

Hathaway then went a step further. He saw a case of perforated gastric ulcer two hours after perforation, and operated within four hours. He sewed up the perforation and, as it was near the pylorus and tended to close it, did a gastro-enterostomy. He mechanically cleansed the peritoneum of food, washed out with flavine, and sutured completely. The result was healing by first intention and an uninterrupted recovery, better than he has experienced with the use of a drainage tube. Then he had to treat a bad compound fracture of tibia and fibula with a large external and contused wound, in a boy who had been run over by a motor lorry. He excised well clear of all damaged tissues—wiped out with bipp, and so mechanically cleansed and closed the whole wound by primary suture. The result was healing by first intention without a trace of suppuration.

The next step forward was in a case of gonococcal peritonitis. The peritoneum was infected and the abdominal cavity contained a turbid fluid; he removed one fallopian tube full of thick gonococcal pus, cleansed the peritoneum mechanically, washed out with flavine, and closed without drainage. The result was uninterrupted recovery and healing first intention.

A method of treatment in bone surgery which Hathaway employed in France was founded on the idea of eradicating the "dead space" in a bone following the loss of substance by a gunshot wound or by an operation for infection. His idea was that where a dead space or open cavity was left in a bone by destruction it should be filled, not by blood clots, allowing a nidus for primary or secondary infection, but by an antiseptic wax which could be poured in hot, and would gradually cool and fill up any cavity. Hathaway did this on three occasions with excellent results, using a compound of thymol, petrolatum and candle-wax, which would become semisolid at normal body temperature.

Lancet, London

June 29, 1918, 1, No. 4948

13 Modern Views on Diabetes and on Significance of Acidosis in Disease. E. P. Poulton.—p. 895.
14 *Delayed Primary Suture. W. G. Ball.—p. 898.
15 Traumatic Aneurysm of Second Portion of Subclavian Artery; Operation. A. H. Tubby and J. B. Banister.—p. 902.
16 *Cerebral Galvanism: Treatment of Children Mentally Backward as Result of Prolonged Illness. F. Hernaman-Johnson.—p. 903.
17 *Selective Treatment of Paralyzed Muscles. W. J. Turrell.—p. 904.
18 *Sterilization of Local Anesthetics. M. Macnaughton-Jones.—p. 904.

14. **Delayed Primary Suture.**—The object of this paper, which deals with the records of 100 consecutive cases, is to bring to the notice of surgeons the desirability of performing the so-called "delayed primary suture" of wounds as frequently as possible in cases which permit of its being carried out. The wounds treated by Ball have been of all types (excision had been performed in all); for instance, excisions of skin only, skin and muscle, compound fractures embedded in muscle and those lying in subcutaneous situations, amputation stumps, and injuries connected with joints. In all the cases received it had been the object of the surgeon at the casualty clearing station (under instructions from the authorities) that this method of treatment should be adopted at the base, so that careful excisions of damaged tissues had been carried out and careful packing of pockets of the wounds instituted; the chief packs used were flavine and bipp, but ether and plain gauze packs also came to the base.

On arrival, the packs were not removed until the patient was taken to the operating room and anesthetized. The top dressings were then removed and the skin carefully washed with picric acid (2 per cent. alcoholic solution) before the pack was distributed. The pack was always removed with forceps, the fingers not being put into the wound at all. Rough removal of the pack was studiously avoided so as not to start hemorrhage, which Ball believes is probably a factor of great importance in obtaining a successful result. The characteristic appearance of the wound, which has been packed with gauze soaked in flavine (1:2,000), on the second to fourth day, is that it has a dry surface, dull in appearance, slightly sticky, without discharge or granulation tissue formation; a certain yellow discoloration is common but not always present. At a later date, a thin sticky exudate forms and may be seen in the earlier stages in the case of deep wounds of muscles. Ball says that it is uncommon to see a purulent discharge, but still such cases came under observation and were put aside until the wounds had been further cleansed. Bipped wounds have a somewhat similar appearance, but in addition minute particles of the ointment are present; the surface is rather oily than sticky. In both cases there is a tendency for the skin edges to become stuck to the underlying tissues.

For the most part the cases treated had had a single pack only applied, some two packs and in one case sewn up on the seventeenth day several packs had been used. Even in that case there were no granulations; the formation of granulations seems to be delayed by the application of drugs tightly packed into the interstices of freshly damaged tissues. After removal of the pack local treatment to the wound was, for the most part, avoided, except in cases in which there had been bleeding in the removal of the pack or when an old blood clot was left in the wound from the original operation. Normal saline solution or flavine was used to get rid of such foreign material. Cases have exceptionally been sutured where actual suppuration was present, but only with the object of diminishing the size of the wound, thus avoiding large areas from which absorption could take place, and also relieving the patient from repeated and painful dressings.

In all wounds the skin was sutured with silkworm gut. In deep wounds (that is, including muscle excisions) penetrating, perforating, or gutter in type, the muscles were sutured with catgut, and on occasion with thread, with the object of preventing the formation of a deep-seated dead space. This is an important point and requires to be carried out with great care. In many cases the muscles were sewn in layers with buried stitches. Complete suture of the skin was the rule wherever possible. Partial suture had to be resorted to in some instances owing to the considerable loss of tissue as the result of the original excision operation, making complete suture impossible. Oil silk drains, removed on the second day after suture, were used in wounds appearing a little moister than desirable or showing a tendency to bleed as the result of manipulation. In amputation stumps drainage was the rule by means of rubber tubes. Gauze soaked in flavine was used as the surface dressing. In all cases great care was taken to see that the wound should be immobilized properly (splinting, extension, etc.), at least until the stitches were removed and even after that. The stitches were, as a rule, removed on the eighth day and the patient kept in the hospital until the twelfth day. Cultures were made at the time the pack was removed, but in no case was the result of the investigation awaited, as the wounds were sutured immediately after the removal of the pack. This is important, as the results tend to show the advantage of taking the clinical appearance of the wound as the indication for its suture rather than to depend on bacteriologic findings. It is one of the objects of this paper to show that a knowledge of the latter is not essential in order to get good, or one might even say the best, results.

Among the 100 cases there were 15 failures, 59 complete successes and 26 partial successes. The majority of the latter were completely healed before discharged from the hospital. In the failures the presence of bacteria in the wounds played a prominent part. In 7 out of 15 cases their presence was demonstrated. In 5 cases no cultures were made. In the other 3 no bacteria were present on cultivation. With one exception the clinical appearance of the wound warranted suture. In the three cases from which bacteria were not grown the wounds did not suppurate, but opened up after removal of the stitches, due to lack of healing power. Two flavine packs, one bipp pack. The same occurred in one of those in which no cultures were made. There is nothing to indicate that any one form of packing is better than another. Flavine has been used in 18 cases of partial success, 33 cases of complete success, and 7 cases of failure. Bipp has been used in 3 cases of partial success, 14 cases of complete success, and 4 cases of failure. Plain gauze has been used in 1 case of failure, 3 cases of partial success, and 3 cases of complete success. In the remainder Carrel, ether packs, etc., have been used. In order to obtain the best results it is obvious that adequate excision of the damaged tissues is essential; this is of primary importance, and unless it is carried out successfully the date of suture is necessarily delayed.

16. **Cerebral Galvanism.**—Hernaman-Johnson claims that cerebral galvanism has given brilliant results not only in neurasthenia, but also in paralysis due to cerebral trauma, when this has not resulted in actual destruction of brain elements. Such injury is usually confined to one hemisphere.

17. **Treatment of Paralyzed Muscles.**—Two objections have been raised to this form of treatment: (1) That the contractions produced are too jerky and abrupt, and do not possess the smoothness and evenness of a physiologic contraction; (2) that overaction of the healthy antagonistic muscles is excited, especially when muscles in an advanced stage of degeneration are being treated. Turrell says that both these objections can be overcome by the adoption of an ingenious method described by M. Louis Lapicque, the well known French physiologist. He found that if the current of excitation was made progressively, instead of, as is usually the case, suddenly and abruptly, the loss in efficiency due to this retarded excitation was less in the case of paralyzed muscles than in healthy ones. Lapicque accomplished this retardation by the employment of condensers placed in parallel. At the make of the current the condensers in parallel have to become fully charged before the full current strength reaches the patient; at the break of contact the condenser discharges through the patient in the direction of the current of make, and so damps the current at break. To be fully effective it is necessary that the time of discharge of the condensers should exceed the chronaxie of the nerve of the healthy muscles, but should be less than the chronaxie of the paralyzed muscles. The method does not as yet appear to have been much used in France; but in Turrell's opinion it is deserving of an extended trial, as both theoretically and practically it appears to remove the objections alleged against the use of the interrupted galvanic current in peripheral nerve lesions and in infantile paralysis.

18. **Sterilization of Local Anesthetics.**—A simple but effective method of preparing a sterile solution of cocain or other local anesthetic which may also contain epinephrin chlorid is described by Macnaughton-Jones. It consists in preparing a solution of sodium chlorid together with the anesthetic or anesthetics and epinephrin chlorid, each constituent being present in such quantity that a dilution with many (for instance, forty) *times the volume of water will give a solution containing* the requisite percentage of each. The preparation is placed in a sealed phial or ampoule and kept until required. Sterile water is added immediately before injection. Experiments demonstrate that even if the preparation be inoculated with the ordinary forms of bacterial contamination the presence of concentrated salt renders it sterile in a few days. A simple method of preparing the concentrated solution is to take the quantities of anesthetic, salt, etc., required per 1,000 and dissolve in water, but make up to 25 instead of to 1,000. The concentrated solution Macnaughton-Jones prepared contains: procain, 3.25 (13 per cent.); sodium chlorid, 3.25 (13 per cent.); epinephrin chlorid solution (1 in 1,000), 8.0 (32 per cent.); water by weight (or metric), add 25.0 (100). If a 2 in 1,000 (0.2 per cent.) solution of cocain be desired the formula would be modified as follows: The osmotic pressure of such a solution is only equal to that of a 0.35-1,000 sodium chlorid, and consequently about 3.65-1,000 of this salt is added; but, inasmuch as cocain produces anemia, the epinephrin may be reduced if desired. The concentrated solution: cocain hydrochlorid, 2 (8 per cent.); sodium chlorid (approximately), 3.75 (15 per cent.); epinephrin chlorid (1 in 1,000), 6 (24 per cent.); water by weight to 25 (100).

Journal de Médecine de Bordeaux, Paris

June, 1918, 89, No. 6

19 *The Mosquito Question. A. Le Dantec.—p. 151.
20 *Hydrarthrosis of Knee in the Wounded. L. Laubie.—p. 158.
21 *Mycosis Simulating Pulmonary Tuberculosis. R. Canio.—p. 162.
22 Sanatorium for Weakly Children. R. Molinéry.—p. 166.
23 Medical Students in the War. Anonymous.—p. 171.

19. **The Mosquito Question.**—Le Dantec has been studying this question at a seacoast town where mosquitoes abound and the inadequacy of the water supply compels the collection of rain water in cisterns and hogsheads, etc. His conclusion is that the secret of success under the conditions prevailing there is to keep everything screened or covered, and he declares that the local police could enforce this if the municipality orders it. The mayor of Monaco has passed a decree of this kind, ordering that all recipients of water in the grounds and porches must be hermetically closed, as also fountains unless there is a continuously flowing jet or the basin is stocked with fish or is sprayed with petrol every two weeks, 15 c.c. to the square meter. Roof tanks and cisterns must be kept covered and constantly clean, and be cleared out at least once a year. The local health board sees to it that these regulations are enforced, with strict oversight and

been proved that adipose tissue, when transplanted onto any raw surface, has the property of becoming adherent to it, with little reaction or alteration in its original size. Charles has applied this practice to the knee joint in the cleaner cases for filling up a hole in the articular surface. The infrapatellar pad of fat, with the attached portion of synovial membrane, is usually convenient, and Charles has found that such a pad inserted into the bony cavity acts also as a plug in arresting the oozing of blood.

It is now a recognized fact that when the knee joint is given a fair chance it can deal with a mild infection, but not so the surrounding soft tissues; therefore it is important to close the joint completely and without tension. Beginning at the edge of the wound, the redundant synovial membrane is undermined from its attachments to the soft tissues and to the condyle all round the hole; it is then closed by suture, so as to exclude the bone lesion from the joint cavity. This is also done with wounds in the suprapatellar region. Again, in rare cases, where the patella has been removed and the severely lacerated condition of the adjoining soft parts renders it absolutely necessary to close the true joint cavity, the whole of the synovial membrane from the suprapatellar pouch may be brought down and sutured to the synovialis below. A further lateral incision may be required to give access for this dissection. The wound is sutured in layers—the synovial membrane by a continuous suture of fine catgut, the capsule is brought together by interrupted sutures, and the rest of the wound closed without drainage. In any case in which there is doubt as to complete absence of infected tissue, one or two Carrel's tubes are placed under the skin, in the hope of preventing sepsis. This, however, is seldom necessary. The dressing is applied with a firm bandage and the tourniquet is then released. Finally the leg is put up in a Thomas splint.

9. **Abuse of Drainage Tubes.**—Hathaway believes that if surgeons will take their courage in both hands, and will not be frightened by a little infection, leaving it to be dealt with by the natural resistance of the tissues to infection, and will give up the use of drainage tubes, they will not only find their results very much better, but they will find their outlook on surgery totally changed. All that is necessary is to put something into the tissues which will keep a "passage" open but which does not leave an open "drain." If a passage is required to be kept open, Hathaway puts in a piece of soft folded rubber—for instance, in an appendix abscess. This allows pus to come away, but will not leave an open "drain" by which secondary infection of staphylococci, from the skin, or other organisms can gain entrance.

War surgery has taught what should be the two main principles of civil surgery: 1. Early and complete operation. 2. That secondary or mixed infection is worse than primary infection. While the tissues of the body can, if give a fair chance, deal with one infection only, if that infection becomes a mixed one by entrance of organisms from outside, then the last state is worse than the first. Applying his experience of modern war surgery Hathaway started sewing up ordinary staphylococcic abscesses of the subcutaneous tissues, after incision and wiping out with bipp, and found they healed by first intention.

Hathaway then went a step further. He saw a case of perforated gastric ulcer two hours after perforation, and operated within four hours. He sewed up the perforation and, as it was near the pylorus and tended to close it, did a gastro-enterostomy. He mechanically cleansed the peritoneum of food, washed out with flavine, and sutured completely. The result was healing by first intention and an uninterrupted recovery, better than he has experienced with the use of a drainage tube. Then he had to treat a bad compound fracture of tibia and fibula with a large external and contused wound, in a boy who had been run over by a motor lorry. He excised well clear of all damaged tissues—wiped out with bipp, and so mechanically cleansed and closed the whole wound by primary suture. The result was healing by first intention without a trace of suppuration.

The next step forward was in a case of gonococcal peritonitis. The peritoneum was infected and the abdominal cavity contained a turbid fluid; he removed one fallopian tube full of thick gonococcal pus, cleansed the peritoneum mechanically, washed out with flavine, and closed without drainage. The result was uninterrupted recovery and healing first intention.

A method of treatment in bone surgery which Hathaway employed in France was founded on the idea of eradicating the "dead space" in a bone following the loss of substance by a gunshot wound or by an operation for infection. His idea was that where a dead space or open cavity was left in a bone by destruction it should be filled, not by blood clots, allowing a nidus for primary or secondary infection, but by an antiseptic wax which could be poured in hot, and would gradually cool and fill up any cavity. Hathaway did this on three occasions with excellent results, using a compound of thymol, petrolatum and candle-wax, which would become semisolid at normal body temperature.

Lancet, London

June 29, 1918, **1**, No. 4948

13 Modern Views on Diabetes and on Significance of Acidosis in Disease. E. P. Poulton.—p. 895.
14 *Delayed Primary Suture. W. G. Ball.—p. 898.
15 Traumatic Aneurysm of Second Portion of Subclavian Artery; Operation. A. H. Tubby and J. B. Banister.—p. 902.
16 *Cerebral Galvanism: Treatment of Children Mentally Backward as Result of Prolonged Illness. F. Hernaman-Johnson.—p. 903.
17 *Selective Treatment of Paralyzed Muscles. W. J. Turrell.—p. 904.
18 *Sterilization of Local Anesthetics. M. Macnaughton-Jones.—p. 904.

14. **Delayed Primary Suture.**—The object of this paper, which deals with the records of 100 consecutive cases, is to bring to the notice of surgeons the desirability of performing the so-called "delayed primary suture" of wounds as frequently as possible in cases which permit of its being carried out. The wounds treated by Ball have been of all types (excision had been performed in all); for instance, excisions of skin only, skin and muscle, compound fractures embedded in muscle and those lying in subcutaneous situations, amputation stumps, and injuries connected with joints. In all the cases received it had been the object of the surgeon at the casualty clearing station (under instructions from the authorities) that this method of treatment should be adopted at the base, so that careful excisions of damaged tissues had been carried out and careful packing of pockets of the wounds instituted; the chief packs used were flavine and bipp, but ether and plain gauze packs also came to the base.

On arrival, the packs were not removed until the patient was taken to the operating room and anesthetized. The top dressings were then removed and the skin carefully washed with picric acid (2 per cent. alcoholic solution) before the pack was distributed. The pack was always removed with forceps, the fingers not being put into the wound at all. Rough removal of the pack was studiously avoided so as not to start hemorrhage, which Ball believes is probably a factor of great importance in obtaining a successful result. The characteristic appearance of the wound, which has been packed with gauze soaked in flavine (1:2,000), on the second to fourth day, is that it has a dry surface, dull in appearance, slightly sticky, without discharge or granulation tissue formation; a certain yellow discoloration is common but not always present. At a later date, a thin sticky exudate forms and may be seen in the earlier stages in the case of deep wounds of muscles. Ball says that it is uncommon to see a purulent discharge, but still such cases came under observation and were put aside until the wounds had been further cleansed. Bipped wounds have a somewhat similar appearance, but in addition minute particles of the ointment are present; the surface is rather oily than sticky. In both cases there is a tendency for the skin edges to become stuck to the underlying tissues.

For the most part the cases treated had had a single pack only applied, some two packs and in one case sewn up on the seventeenth day several packs had been used. Even in that case there were no granulations; the formation of granulations seems to be delayed by the application of drugs tightly packed into the interstices of freshly damaged tissues. After removal of the pack local treatment to the wound was, for the most part, avoided, except in cases in which there had been bleeding in the removal of the pack or when an old blood clot was left in the wound from the original operation. Normal saline solution or flavine was used to get rid of such foreign material. Cases have exceptionally been sutured where actual suppuration was present, but only with the object of diminishing the size of the wound, thus avoiding large areas from which absorption could take place, and also relieving the patient from repeated and painful dressings.

In all wounds the skin was sutured with silkworm gut. In deep wounds (that is, including muscle excisions) penetrating, perforating, or gutter in type, the muscles were sutured with catgut, and on occasion with thread, with the object of preventing the formation of a deep-seated dead space. This is an important point and requires to be carried out with great care. In many cases the muscles were sewn in layers with buried stitches. Complete suture of the skin was the rule wherever possible. Partial suture had to be resorted to in some instances owing to the considerable loss of tissue as the result of the original excision operation, making complete suture impossible. Oil silk drains, removed on the second day after suture, were used in wounds appearing a little moister than desirable or showing a tendency to bleed as the result of manipulation. In amputation stumps drainage was the rule by means of rubber tubes. Gauze soaked in flavine was used as the surface dressing. In all cases great care was taken to see that the wound should be immobilized properly (splinting, extension, etc.), at least until the stitches were removed and even after that. The stitches were, as a rule, removed on the eighth day and the patient kept in the hospital until the twelfth day. Cultures were made at the time the pack was removed, but in no case was the result of the investigation awaited, as the wounds were sutured immediately after the removal of the pack. This is important, as the results tend to show the advantage of taking the clinical appearance of the wound as the indication for its suture rather than to depend on bacteriologic findings. It is one of the objects of this paper to show that a knowledge of the latter is not essential in order to get good, or one might even say the best, results.

Among the 100 cases there were 15 failures, 59 complete successes and 26 partial successes. The majority of the latter were completely healed before discharged from the hospital. In the failures the presence of bacteria in the wounds played a prominent part. In 7 out of 15 cases their presence was demonstrated. In 5 cases no cultures were made. In the other 3 no bacteria were present on cultivation. With one exception the clinical appearance of the wound warranted suture. In the three cases from which bacteria were not grown the wounds did not suppurate, but opened up after removal of the stitches, due to lack of healing power. Two flavine packs, one bipp pack. The same occurred in one of those in which no cultures were made. There is nothing to indicate that any one form of packing is better than another. Flavine has been used in 18 cases of partial success, 33 cases of complete success, and 7 cases of failure. Bipp has been used in 3 cases of partial success, 14 cases of complete success, and 4 cases of failure. Plain gauze has been used in 1 case of failure, 3 cases of partial success, and 3 cases of complete success. In the remainder Carrel, ether packs, etc., have been used. In order to obtain the best results it is obvious that adequate excision of the damaged tissues is essential; this is of primary importance, and unless it is carried out successfully the date of suture is necessarily delayed.

16. **Cerebral Galvanism.**—Hernaman-Johnson claims that cerebral galvanism has given brilliant results not only in neurasthenia, but also in paralysis due to cerebral trauma, when this has not resulted in actual destruction of brain elements. Such injury is usually confined to one hemisphere.

17. **Treatment of Paralyzed Muscles.**—Two objections have been raised to this form of treatment: (1) That the contractions produced are too jerky and abrupt, and do not possess the smoothness and evenness of a physiologic contraction; (2) that overaction of the healthy antagonistic muscles is excited, especially when muscles in an advanced stage of degeneration are being treated. Turrell says that both these objections can be overcome by the adoption of an ingenious method described by M. Louis Lapicque, the well known French physiologist. He found that if the current of excitation was made progressively, instead of, as is usually the case, suddenly and abruptly, the loss in efficiency due to this retarded excitation was less in the case of paralyzed muscles than in healthy ones. Lapicque accomplished this retardation by the employment of condensers placed in parallel. At the make of the current the condensers in parallel have to become fully charged before the full current strength reaches the patient; at the break of contact the condenser discharges through the patient in the direction of the current of make, and so damps the current at break. To be fully effective it is necessary that the time of discharge of the condensers should exceed the chronaxie of the nerve of the healthy muscles, but should be less than the chronaxie of the paralyzed muscles. The method does not as yet appear to have been much used in France; but in Turrell's opinion it is deserving of an extended trial, as both theoretically and practically it appears to remove the objections alleged against the use of the interrupted galvanic current in peripheral nerve lesions and in infantile paralysis.

18. **Sterilization of Local Anesthetics.**—A simple but effective method of preparing a sterile solution of cocain or other local anesthetic which may also contain epinephrin chlorid is described by Macnaughton-Jones. It consists in preparing a solution of sodium chlorid together with the anesthetic or anesthetics and epinephrin chlorid, each constituent being present in such quantity that a dilution with many (for instance, forty) times the volume of water will give a solution containing the requisite percentage of each. The preparation is placed in a sealed phial or ampoule and kept until required. Sterile water is added immediately before injection. Experiments demonstrate that even if the preparation be inoculated with the ordinary forms of bacterial contamination the presence of concentrated salt renders it sterile in a few days. A simple method of preparing the concentrated solution is to take the quantities of anesthetic, salt, etc., required per 1,000 and dissolve in water, but make up to 25 instead of to 1,000. The concentrated solution Macnaughton-Jones prepared contains: procain, 3.25 (13 per cent.); sodium chlorid, 3.25 (13 per cent.); epinephrin chlorid solution (1 in 1,000), 8.0 (32 per cent.); water by weight (or metric), add 25.0 (100). If a 2 in 1,000 (0.2 per cent.) solution of cocain be desired the formula would be modified as follows: The osmotic pressure of such a solution is only equal to that of a 0.35-1,000 sodium chlorid, and consequently about 3.65-1,000 of this salt is added; but, inasmuch as cocain produces anemia, the epinephrin may be reduced if desired. The concentrated solution: cocain hydrochlorid, 2 (8 per cent.); sodium chlorid (approximately), 3.75 (15 per cent.); epinephrin chlorid (1 in 1,000), 6 (24 per cent.); water by weight to 25 (100).

Journal de Médecine de Bordeaux, Paris

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19 *The Mosquito Question. A. Le Dantec.—p. 151.
20 *Hydrarthrosis of Knee in the Wounded. L. Laubie.—p. 158.
21 *Mycosis Simulating Pulmonary Tuberculosis. R. Canio.—p. 162.
22 Sanatorium for Weakly Children. R. Molinéry.—p. 166.
23 Medical Students in the War. Anonymous.—p. 171.

19. **The Mosquito Question.**—Le Dantec has been studying this question at a seacoast town where mosquitoes abound and the inadequacy of the water supply compels the collection of rain water in cisterns and hogsheads, etc. His conclusion is that the secret of success under the conditions prevailing there *is to keep everything screened or covered,* and he declares that the local police could enforce this if the municipality orders it. The mayor of Monaco has passed a decree of this kind, ordering that all recipients of water in the grounds and porches must be hermetically closed, as also fountains unless there is a continuously flowing jet or the basin is stocked with fish or is sprayed with petrol every two weeks, 15 c.c. to the square meter. Roof tanks and cisterns must be kept covered and constantly clean, and be cleared out at least once a year. The local health board sees to it that these regulations are enforced, with strict oversight and

prompt prosecution of offenders. A campaign of educating the public should be undertaken, showing the people that they raise their own mosquitoes to torment them, and that they can stop this at any time they wish.

20. **Hydrarthrosis of the Knee.**—Laubie deplores that so many men with hydrarthrosis of the knee are allowed to go for months before the knee is punctured. When the joint effusion is withdrawn promptly, smooth recovery is the rule in thirty or thirty-five days, but he has encountered many cases in which this was neglected or postponed, and the men after eight, eleven or more months are still incapacitated by their knee lesion. In one of the cases reported the man had been given treatment at ten different hospitals in the sixteen months, but with little benefit. Laubie then punctured and withdrew 60 gm. of fluid and rinsed out the cavity with a 1 per cent. phenol solution. Puncture alone is not enough, as he shows by some examples. It should be supplemented by lavage of the joint cavity with some antiseptic. Among the seventeen cases described were some with gonorrheal or rheumatismal hydrarthrosis but all yielded the same to puncture with lavage, exercise and massage. In one case the hydrarthrosis was evidently the work of a lesion of the sciatic nerve, but this too yielded to puncture and a splint. He sometimes injects 4 or 5 c.c. of a 1 per cent. solution of cocain before the lavage, but usually this is not required. The amount of fluid withdrawn varied from 30 to 500 gm. The success was complete in his twenty-eight cases, with the exception of two in which there was a hygroma or a lesion of the patella. Immobilization and revulsion may cure in quite recent cases of hydrarthrosis; if not, puncture and lavage can be relied on for a prompt cure. One woman of 75 was using the knee in walking ten days after the puncture. With a chronic lesion of this kind, if there is no fluid evident, he systematically brings on a recurrence by forced walking before he intervenes.

21. **Mycosis Simulating Tuberculosis.**—Canio's patient was a man of 31 who for six weeks had presented a cough, asthenia, backache, periods of fever and intense pain in the right scapular region, and later throughout the right chest. After nearly three months there was a chill and high fever with signs of pleurisy with effusion. After this he began to improve and seemed to have entirely recovered by the end of the fifth month. The symptoms for several months had deceptively simulated those of pulmonary tuberculosis, but the laboratory cleared up the diagnosis, showing the *Penicillium glaucum* in the sputum, reproducing the mycosis by injecting rabbits with the sputum, while the biologic tests and seroreaction confirmed the mycosis nature of the disease. Prompt recovery followed under iodid treatment.

Nourrisson, Paris

May, 1918, **6**, No. 3

24 *Syphilis in Children in Morocco. Lacapère and Laurent.—p. 129.
25 The Technic for Artificial Feeding. A. B. Marfan.—p. 137.
26 *Invagination of Intestine in Infants. E. Apert.—p. 148.

24. **Syphilis in Children in Morocco.**—Lacapère and Laurent state that among 1,000 syphilitic natives examined, no less than 161 were children under 15. Thus 16 per cent. of the syphilitics were children. Fully 75 per cent. of the natives in their district have syphilis, and the children born without it are liable to acquire it soon. In only 37 of the 161 cases of syphilis in children had the disease been inherited. The child mortality is appalling; 70 per cent. had died of the children of 44 syphilitic women who had each borne over six children, and 55 per cent. of the children of 44 nonsyphilitic women with five children each. Malaria, amebic dysentery and diarrheas lie in wait for the Arab children, and the frequent syphilis and utter lack of hygiene render them more susceptible.

26. **Intussusception.**—Apert emphasizes the necessity for early recognition of acute invagination as it is almost certainly fatal in infants if not promptly corrected. Recent compilations show a general average of 14 per cent. mortality with operations for invagination within the first twelve hours, up to 78 per cent. mortality by the fourth day. In Grisel's compilation, 68 per cent. of the 300 cases were in infants. In all statistics, male infants form over two thirds of the cases (89 per cent. in Rilliet's compilation). The invagination in infants was ileocecal in 82 per cent. of the cases. The small intestine alone was involved only in 5 per cent. Vomiting is the first symptom and it keeps up. The child looks very sick and distressed, and with his hand seems to be trying to push off from his abdomen something that is hurting him. The stools show blood from the first day; they soon become a reddish brownish soft mass, more or less mixed with mucus, with fifteen or twenty passages a day, but sometimes scarcely more than the mass of a large sputum is passed.

There is no occlusion of the bowels in infants from the invagination, no constipation, no retraction, no induration, no tympanism, at least at first. The abdomen is soft until peritonitis complicates the clinical picture. The invagination is differentiated by the combination of the vomiting, pain and the bloody stools. If no feces are available for examination, the physician's finger introduced into the child's rectum will become coated with the characteristic brownish red paplike stool. It is sometimes possible to detect with the finger in the rectum the tip of the invaginatum. In some rare cases the tip projected from the anus, simulating prolapse of the rectum. When the mass formed by the triple-walled cylinder of the invaginated bowel has become congested and inflamed, the tumor thus formed can be palpated. Although the invagination usually starts in the ileocecal region, it advances along the colon, growing constantly longer, which shortens the bowel outside of the invagination, and this draws the invaginated portion more and more out of place, toward the left iliac fossa or into the small pelvis. Hence the invaginated portion is often found in the left iliac fossa or in the hypogastrium, rather than in the ileocecal region where it started.

Paris Médical

May 11, 1918, **8**, No. 19

27 *Night Blindness. A. Magitot.—p. 369.
28 *Bone Periosteum Grafts. Virenque.—p. 373.
29 *Treatment of Syphilis of the Nervous System. A. Tzanck and A. Bernard.—p. 376.

27. **Adaptation of the Eye to Comparative Darkness.**—Magitot remarks that hemeralopia is not uncommon in soldiers at present. Its mechanism is evident, with retinitis from inherited or acquired syphilis or other lesions. When there are no objective findings, the hemeralopia may be congenital, and sometimes inherited. Examples of hemeralopia through several generations are known, the hemeralopia transmitted through the females to the males. Sclerosis in the elderly may also entail hemeralopia, and it has been observed in persons struck by lightning, and as a consequence of kidney or liver trouble. But all these causes combined, he says, do not explain the prevalence of this *cécité crépusculaire* in the soldiers. It must be that many of them had had hemeralopia in civilian life without knowing it. Conditions with myopia favor it, and the stress of active service and effects of auto-intoxication may transform relative into absolute night blindness. Abuse of alcohol is another predisposing factor. Rest in bed for a week, on a milk diet, with diuretics, and abstention from meat afterward will rapidly cure true hemeralopia, as a rule, when kidney and liver disease have been excluded.

28. **Bone-Periosteum Grafts.**—Virenque adds his testimony to that of others who emphasize that a graft including bone and periosteum is a "physiologic" implant, which in a few months becomes transformed into compact tissue. His experience with it has been mainly with pseudarthrosis of the lower jaw.

29. **Treatment of Syphilis of the Nervous System.**—Tzanck and Bernard report encouraging results from their method of intravenous injections of arsphenamin in increasing doses, each followed after an interval of five minutes by lumbar puncture evacuating at least 10 c.c. of cerebrospinal fluid. This method of treatment, they say, ranks next to intraspinal injection of arsphenamized spinal fluid, and is safer than the latter when there is doubt as to the soundness of the neuraxis. The details of eleven cases are given; manifest improvement was realized in about two thirds of them.

Presse Médicale, Paris

June 10, 1918, **26**, No. 32

30 *Edema without Nephritis. M. Labbé and Marcorelles.—p. 289.
31 Care of Amputation Stump. P. Desfosses.—p. 290.
32 Tardy Tetanus. E. Antoine.—p. 293.
33 *Bacteriologic Examination of War Wounds. C. Levaditi.—p. 294.
34 Tetanus Localized in Limbs. E. Chauvin.—p. 295.
35 *Hemorrhage after Tonsillectomy. J. Labouré.—p. 296.

30. **Edema Without Nephritis.**—Labbé and Marcorelles report two cases of diffuse edema, with anasarca and retention of chlorids, independent of any tendency to kidney disease. In both cases the severe dropsy developed toward the close of an attack of dysentery of moderate severity in one and very serious in the other case. The edema kept up until salt was excluded from the diet, and with this and theobromin the dropsy rapidly subsided. Others have reported similar cases, occurring likewise when the system had been drained of fluids, albumin and salts by the dysentery. The edema in extent and intensity may simulate that of chronic nephritis.

33. **Technic for Bacteriologic Examination of War Wounds.**—Levaditi reproduces the simple bacteriologic case chart in use for the wounded as a guide to the surgeon.

35. **Hemorrhage After Tonsillectomy.**—Labouré gives an *illustrated description* of the way to suture the pillars, applying three suture threads and tying them over a roll of gauze, or applying a series of three or four Michel clips. The clips can be applied over a piece of rubber tubing about the size of a lead pencil. He tests the blood beforehand to exclude abnormal coagulating properties, or as an indication for horse serum and calcium chlorid. If the operative wound bleeds much, he applies cotton dipped in horse serum, with suture or the clips if the hemorrhage keeps up; with ligation of the common carotid if all else fails. This, he says, done under local anesthesia is both benign and effectual, as he has proved in three cases reported. In one the ascending pharyngeal artery alone was ligated, in the others the common carotid. These patients were all young adults.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 1, 1918, **48**, No. 22

36 *Tuberculosis in Soldiers. R. Staehelin.—p. 721.
37 *Lactic Acid in Stomach. H. A. Rodella.—p. 726.
38 "Iron Placenta" Test for Pregnancy. P. Hüssy.—p. 733.
39 Cutis Verticis Gyrata; Four Cases. S. Galant.—p. 743.

36. **Tuberculosis in Soldiers.**—Staehelin reviews his personal experience with tuberculosis in Swiss soldiers. One point brought out by some of the cases is that severe stomach disturbances may be the first and for a time the only appreciable symptoms of beginning tuberculosis. There had been subfebrile temperature for some time, but the tuberculin test was negative, and Schlapfer's experience with numbers of persons with subfebrile temperature followed through years showed that only a third developed tuberculosis during the following six to ten years. Hence the diagnosis of tuberculosis cannot be based solely on a subfebrile temperature. The gastric symptoms: vomiting, with slight admixture of blood, pains and tenderness, suggested gastric ulcer, but the subjective disturbances ceased on wearing a band to support the sagging stomach. Five months later they had all returned, with cough and night sweats. Some of the other cases illustrate the importance of examining twice a day for the focal reaction, after the tuberculin test, as otherwise it may escape detection. Of all the men with tuberculosis or the suspects, including those with pleurisy with or without effusion, only 33 per cent. are now clinically cured. This shows the great burden placed by tuberculosis on the military insurance funds, and this burden will increase in the next few years. Many of these men would not have developed tuberculosis if left in civilian life, and it is hard to determine the exact share of the military service in its development. In 1916 the plan was adopted of giving the married tuberculous soldier only one half and the unmarried one quarter of the regular sickness pension provided by law. This is working well, Staehelin says, although theoretically every man disabled by sickness should get the full pension to which he is entitled by law. A collective inquiry has shown that the pension allowed is inadequate in about half of the cases.

37. **Lactic Acid in the Stomach.**—Rodella found lactic acid constantly in the stomach in thirty-five cases of gastric carcinoma. Sarcinae were found in three of the thirty-five. In a case of carcinoma of the right kidney pelvis, there was considerable lactic acid in the sound stomach, which shows that it is not exclusively restricted to cancer in the stomach. The symptoms in this case for a long time had pointed merely to the stomach, and a simple ulcer was found in it.

Riforma Medica, Naples

June 8, 1918, **34**, No. 23

40 *Recurring Prolapse of Rectum. D. Giordano.—p. 442.
41 *Symptoms after Injury of Internal Carotid. G. Bastogi.—p. 444.
42 Diagnosis of Adhesive Pericarditis. G. Moscati.—p. 449.
43 Vaccination against Smallpox. S. Belfanti.—p. 454.

40. **Recurring Prolapse of the Rectum.**—Giordano's patient was a woman of 72 who had had two operations done in the last eighteen years to correct prolapse of the rectum, without durable benefit. He discusses the various technics that had been or could be applied, and reports complete success with measures directed toward sustaining the upper part of the bowel and reenforcing the floor of the perineum. Neither alone would have sufficed. The visceral ptosis was corrected by anastomosis between the sigmoid flexure region and the anterior aspect of the cecum. This drew up the rectum and abolished at one stroke all the pathologic conditions maintained by the torpor of the excessively long and sagging large intestine.

41. **Hemiplegia After Ligation of External Carotid.**—Bastogi relates that the internal carotid had been injured by a projectile and ligation of the external carotid was required later. Right hemiplegia and aphasia developed suddenly four days afterward, and in a few weeks there were epileptiform spasms on that side. The course of the projectile apparently exculpated the war wound as the direct cause of the brain symptoms. There was evidently some embolism in a cerebral artery and this in turn induced an inflammatory reaction in the tissues around.

Rivista Critica di Clinica Medica, Florence

June 8, 1918, **19**, No. 23

44 Epidemic of Cerebrospinal Meningitis at Friuli, 1915-1917. G. Berghinz.—p. 265. Concluded in No. 24, p. 277.

Brazil-Medico, Rio de Janeiro

April 27, 1918, **32**, No. 17

45 *The Lutz Research Commission. O. A. Penna.—p. 129. Commenced in No. 16, p. 121.

45. **Bacteriologic Research Commission in Northern Brazil.**—The research on endemic diseases in northern Brazil was undertaken mainly to study the *Schistosomum mansoni*. The commission was headed by Professor Lutz, and its three years of work have established the biology of this parasite. Its life cycle has been traced from the characteristic lateral-spined ovum through the intermediate host, which is a fresh-water snail, to the adult parasite in rabbits, guinea-pigs and man. His laboratory findings were confirmed in every respect by conditions in nature in northern Brazil—this parasite is not known in the rest of the country. He took with him patients suffering from this helminthiasis to have them point out on rivers and lagoons the spots where they had probably become infested with the parasite. The infestation is usually by way of the skin, as the subject bathes in water containing the larvae escaping from these snails, or walks barefoot along the river bank. Pernambuco, Sergipe and Bahia are the main centers of this helminthiasis. Only the ova seem to cause disturbances; the carriers of the adult parasites present no appreciable symptoms. At necropsies the ova were found frequently in the rectum, liver, lungs and brain. In some cases supposed to be rebellious amebic dysentery, these lateral-spined ova were found in large numbers in the stools, as also in cases of cirrhosis of the liver in younger men not addicted to alcohol. Penna remarks that the ova imprisoned in liver, lungs and brain are of course unable to complete their evolution. They are also inaccessible to therapeutic measures until we discover some absorbable drug with an affinity for the helminths and somewhat organotropic, or find

some means to act on the parasite in the portal region. P. da Silva's recent research has definitely established that this schistosomum is a distinct species, not a variety of the hematobium.

45. **Endemic Disease in Northern Brazil.**—In the course of Lutz' research he found that 80 per cent. of the persons examined were carriers of the *Necator americanus,* and from clinical observation alone he estimates that 60 per cent. have hookworm and a similar proportion have malaria. The commission further became convinced that the infectious disease known locally as remittent bilious fever, in some cases, at least, is an incomplete form of yellow fever. This assumption explains the otherwise inexplicable appearance now and then of sporadic cases of actual yellow fever with no known chance for infection. In any event, strict isolation of these cases of so-called remittent bilious fever is imperative.

The mosquitoes are so thick along the rivers of northern Brazil that the commission sometimes felt as if works of effectual prophylaxis were not only beyond human powers but even beyond human imagination. A few cases of bubonic plague were encountered here and there. The city of Penedo has been visited several times with serious epidemics of plague. Prophylaxis of plague in these towns would be extremely difficult. A disease was encountered at one town which seemed to be smallpox but the general health was not impaired; there was no fever and no pitting, and vaccination was no protection against it. There was only one fatal case among the 200 inspected. Only four cases of Vincent's angina were encountered, and no cases, outside of Bahia, of tropical leishmaniasis. No case of Chagas' disease was discovered, although the beetle host was common. None of the numerous specimens examined harbored Chagas' trypanosome. Syphilis was found widely disseminated. Large numbers of blind persons showed the ravages of trachoma, smallpox, syphilis or gonorrhea. A number of "polyvalent individuals" were encountered, that is, affected at the same time with malaria, syphilis and hookworm. Penna adds, "The government has undertaken a campaign to arrest the ravages of the pink boll worm in the cotton plantations, but to date nothing has been done to combat the human endemics."

Medicina Ibera, Madrid

April 6, 1918, 2, No. 22

46 *Intensive Local Treatment of Syphilids. A. S. da Aja.—p. 1.
47 Spontaneous Cure After Delivery of Hernia Developing in Pregnant Women. A. F. Martinez.—p. 5.
48 Tuberculosis and Lactation. B. Frias and Muñoverro.—p. 10.

April 20, 1918, 2, No. 24

49 Radium Treatment in Rhinolaryngology. J. M. Barajas.—p. 61.
50 Various Types of Lichen Papule. Sicilia.—p. 64.
51 Hygiene of Vision. D. M. Marquez.—p. 65.
52 The Convalescent's Decalogue. H. R. Pinilla.—p. 71.
53 *Endocarditis with Puerperal and Gynecologic Disease. A. Gracia.—p. 71.

May 4, 1918, 2, No. 26

54 Manic-Depressive Insanity. S. Herreros.—p. 125.
55 *Treatment of Severe Seborrhea. Sicilia.—p. 127.
56 Treatment of Chronic Constipation. R. M. Terol.—p. 127.

46. **Local Treatment of Syphilids.**—De Aja advocates intensive local treatment for a just beginning chancre when there is a chance for aborting the infection. Also when a secondary or tertiary lesion seems to be the sole or the principal manifestation of the disease and focus of the spirochetes. Also when a lesion keeps recurring at the same point and these recurrences suggest a special local resistance to the general treatment. Also when disease in kidneys, heart or liver prevent effectual general treatment. Local measures include first excision of the lesion, when practicable, dusting with iodid or arsphenamin preparations or injecting a 1 per cent. solution of the iodid, or applying dressings moistened with 1 per cent. arsphenamin, or injecting a 1 per five hundred solution deep into the tissues if the latter are loose, a 1 per thousand if they are compact. These local measures induce lively reactions but they destroy the focus.

53. **Puerperal Endocarditis.**—Gracia discusses endocarditis and embolism after childbirth and with gynecologic disease. He emphasizes the decisive importance of an early diagnosis, and urges obstetricians and practitioners to apply auscultation early and often to their parturients. At any signs of modification of the normal heart sounds, they must be on the alert to insist on the necessity for absolute rest and for refraining from large doses of heart tonics, especially digitalis, as this might bring on embolism. In a case of gonococcus salpingitis in a young woman, very high fever developed with chills, frequent lipothymia, tachycardia, low blood pressure and modification of the heart sounds, and this kept up with very little variation for nearly fifty days. The symptoms then subsided and there has been nothing to call attention to the heart since, not even during an intercurrent normal pregnancy, but there are occasionally slight symptoms that suggest some persisting tubal mischief. The treatment consisted of general daily baths, during the high fever, small saline infusions daily, with camphorated oil and caffein when the heart grew weak, and injections of epinephrin and a pituitary preparation. In another case a woman developed a dragging gonococcus endocarditis, as a complication of chronic salpingitis. The fever was never over 38.6 C. for five months, but then there were signs of septic embolism in the kidney, liver and legs, with final symmetrical gangrene. No benefit was apparent in this case from antigonococcus vaccine, but in a case of gonococcus endocarditis in a man, the symptoms subsided at the fourth injection of a polyvalent vaccine. When extrasystoles develop and the pulse grows weak, the liver becomes congested and albumin appears in the urine, he gives a small daily dose of digitalis for ten days, suspends for five and then gives it for another ten days, and so on. If the heart is overexcitable, he applies an ice bag and gives valerian or quinin bromid in small but continued doses, with camphor and caffein as indicated. During fever he allows only a liter of milk and a liter of some weak herb tea; as the fever subsides, 1.5 liter milk and soups made with milk; bed rest during fever, and on a couch when the fever subsides. When the acute stage is past, he gives iodid and arsenic and then mineral waters. An interval of three or four months should elapse between the acute phase and the course of thermal mineral waters of the saline type. These aid in toning up the whole system, including the endocardium, warding off a possible recurrence of trouble.

55. **Treatment of Severe Seborrhea.**—Sicilia insists that treatment and prophylaxis to ward off recurrence must attack the local lesions, combat the obesity, inherited taint or other general predisposing factors, and seek to regulate the functional disturbances common in such cases. Examination of the urine is a guide to treatment, as it may show the need of tonics or of clearing out of waste products. The weight should be watched also. There is generally hyperchlorhydria, hypophosphaturia or hyperacidity to be combated. Exercise and general local massage are useful, besides vigorous and varied topical applications.

Prensa Medica Argentina, Buenos Aires

April 30, 1918, 4, No. 33

57 *Skin Manifestations from Tardy Inherited Syphilis. M. R. Castex and E. Centeno.—p. 479.
58 Mercury plus Cholesterol in Treatment of Syphilis. E. F. [illegible]—p. 484.
59 *Resection of the Patella. R. Finochietto.—p. [illegible]

57. **Skin Manifestations of Tardy Inherited Syphilis.**—Castex and Centeno state that these manifestations may develop at any age, but they usually appear during adolescence, and predominantly in girls. They are rebellious to all measures except specific treatment for syphilis. Under this they promptly retrogress, if taken in time. Specific treatment should be instituted at once in all dubious cases, as otherwise they entail irreparable lesions leaving disfiguring scars.

59. **Resection of Patella.**—Finochietto remarks that in a certain class of cases he has found it advantageous to induce ankylosis of the knee. To render it more stable, he excavates a mortice hole in the lower cut surface of the femur, and in this hole introduced the upper end of the fibula, cut in a truncated square pyramid to correspond. Both femur and tibia had been resected into sound tissue on account of a chronic purulent process in the knee, resulting from a bullet wound some months before. The ankylosis thus realized was firm and durable without extraneous aid. The shortening of the leg was corrected with a thick soled shoe.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

March, 1918, **26**, No. 3

60 *Bladder Stones in Children. A. de F. Guião.—p. 91.
61 *Yellow Fever in Victoria on the Coast. T. Torres.—p. 111.

60. **Bladder Stones in Children.**—Guião remarks that concretions in the bladder are most common at the two extremes of life, in young children and in the aged. The male children of the poor and the aged form the overwhelming majority of bladder stone cases. In published statistics, children under 14 formed 50 per cent. of the cases, and the greatest frequency was between the ages of 3 and 5. The symptoms are generally merely pain, pollakiuria and the aspect of the urine. The pain radiates to the perineum, rectum, penis and lumbar region. The pain is especially sharp at the close of micturition, when the bladder contracts over the concretion. Repose relieves the pains; it is not felt at night. If the concretion is small it may induce merely slight incontinence, frequent desires to urinate and pruritus of the genital organs. The child rubs the genital organs, so that an especially exuberant prepuce is an instructive sign of bladder stone not causing appreciable symptoms. Palpation through the rectum and hypogastrium may reveal the concretion, or an ordinary catheter introduced into the bladder.

In one of his cases a metal probe disclosed the presence of a supposed concretion in the bladder, but it proved to be a hard tumor. It is difficult to apply the cystoscope to a male child, and radioscopy is likewise difficult; even the use of the No. 12 catheter or metal sound had better be preceded with injection of an anesthetic into the urethra. Operative treatment is the only radical means of cure when the concretion is once formed. The difficulty and the danger of injuring the urethra in the child render lithotrity rarely applicable. The suprapubic incision of the bladder is the measure advocated by Guião. He relates ten typical cases to show the harmlessness, the convenience and the complete success of the removal of the stones by the suprapubic route. In one child of 14 months, the stone must have been congenital, as the disturbances in micturition had been noted from birth. The incisions all healed by primary intention and the children were dismissed from the hospital between the tenth and the twentieth day. The calculus in one boy of 10 was as large as a hen's egg. The concretions seemed to be single in each case.

61. **Yellow Fever at Victoria.**—This is a city of 15,000 inhabitants on the coast, 270 miles north of Rio. There were sixty-one cases of yellow fever there early in 1917, and this is the official report of the representative of the national public health service sent to stamp out the epidemic. This was successfully accomplished.

Revista de Medicina y Cirugia, Havana

June 10, 1918, **23**, No. 11

62 *Prevention of Deafmutism. H. Segui.—p. 291.
63 Branchial Cyst in the Neck; Two Cases. E. Stincer.—p. 295.

62. **Prevention of Deafmutism.**—Seguí comments on the difficulty, even for a physician, to distinguish between congenital and acquired deafness in an infant. But the distinction is extremely important as, without congenital atrophy of the organ, there are generally vestiges of hearing left which are susceptible of being trained. Left unexercised, the auditory nerve finally becomes incapable of functioning. Seguí outlines the exercises capable of rousing these dormant vestiges of hearing, first with loud sounds, then with words and syllables. Loss of hearing before the age of 4 often entails mutism. Even if the child is older when it becomes deaf, it is liable to forget the mechanism of speaking unless pains are taken to keep it practiced. Seguí recently encountered a case of deafmutism acquired in this way. The child's speech and hearing were normal till the age of 5 when it was rendered deaf by having hot oil poured into its ears by a quack, and the child since has forgotten how to talk.

Semana Medica, Buenos Aires

March 28, 1918, **25**, No. 13

64 Dr. Coni's Work on Buenos Aires Institutions for Care of the Sick and Poor and for Welfare Work in General. J. Penna. —p. 337.
65 *Mortality at Rosario. J. B. Valdes.—p. 340.
66 Compulsory Notification of Tuberculosis. E. R. Coni.—p. 344.
67 Care of Children's Teeth in Institutions. Zawels.—p. 348.
68 Combinations of Iodin and Tuberculin. J. Frenguelli.—p. 354.
69 Otogenous Meningitis without Pus in Tympanum. F. Eiras. —p. 358.

April 4, 1918, **25**, No. 14

70 *Ectromelic Monster. J. C. L. Massini.—p. 365.
71 *Tuberculosis in Western South America. S. de Madrid.—p. 371.
72 Federation of Mutual Aid Societies. E. R. Coni.—p. 375.
73 Diagnosis of Appendicitis. G. Giacobini.—p. 376.
74 *Legislation on Mutual Aid Societies. A. M. Gimenez.—p. 377.
75 Indications for Induced Sneezing. S. V. de Castro.—p. 383.

65. **Mortality from Infectious Diseases at Rosario.**—Valdes' tables of statistics show that since 1915 there has not been a fatal case of smallpox at Rosario, but there were two deaths from plague in 1917, and 631 from tuberculosis. (Rosario's population was given at about 100,000 in a recent census. It is on the river about 250 miles above Buenos Aires.)

70. **Congenital Amputations.**—The roentgenograms of the case reported by Massini confirm the assumption that the so-called amputations are in reality malformations, in consequence of some process of degeneration or necrosis. The limbs show different malformations above the supposed amputation from constricting bands.

71. **Tuberculosis in Brazil, Peru, Bolivia and Chile.**—This is a series of letters, each from an authority in the different countries, replying to de Madrid's questionnaire. All emphasize the high incidence of tuberculosis in negroes, and also in the native Indians when they settle in towns. The death rate from tuberculosis is increasing in each country but much more rapidly in the towns. In Chile, the negro and Indian races have been so decimated by tuberculosis that these races are dying out, and the population is gradually growing white. Persons who return to Chile after a few years' absence comment on this constant blanching of the populace. The only exception is Bolivia; in this country the Indians lead out-of-door lives, and the high altitudes cause the chest measure to be exceptionally large. It is always up to 7 cm. above the average chest measure for the height. The red corpuscle count is also high; it was found up to 7,146,666 in the men examined. The Indians lose their immunity to tuberculosis when they seek work in towns. The half-breed working classes have most of the cases, aside from the tuberculous aliens who seek health in the mountain climate of Bolivia. It is dangerous for those who have heart trouble.

74. **Mutual Aid Societies.**—Gimenez presents an outline for legislation to regulate the founding and functioning of mutual aid and fraternal organizations. He specifies in particular the provisions for providing medical service and medicines, instruction in hygiene, etc., for the members, and for the federation of different societies.

Siglo Medico, Madrid

May 4, 1918, **65**, No. 3360

76 *Tuberculous Hyperthyroidism. R. S. de Santa Maria.—p. 342.
77 *Two Months in Pulido Martin's Service. B. Gomez.—p. 344.

May 11, 1918, **65**, No. 3361

78 History of Municipal Sanitary Inspection. V. Prieto.—p. 362.
79 *Trauma of Urinary Apparatus. S. Pascual.—p. 364.

76. **Tuberculous Hyperthyroidism.**—A case is described in which the vagotonic hyperthyroidism suggested exophthalmic goiter, but unmistakable signs of apical tuberculosis disclosed its toxic origin from the tuberculosis toxins. Under specific treatment of the tuberculosis, the apex cleared up and with this all the thyroid symptoms disappeared. In some cases of pure exophthalmic goiter, the writer has witnessed a spasmodic cough suggesting tuberculosis, of purely vagotonic origin, as also in some cases of simple poisoning from thyroidin. Hypothyroidism may accompany tuberculosis, and thyroid treatment may effectually supplement specific treatment of the tuberculosis, which without it may fail of success. Hypothyroid rheumatism, he says, is comparatively common and exceptionally amenable to treatment.

77. **Some Minor Urologic Points.**—Gomez mentions the instructive findings when a light is introduced into the rectum or vagina to aid in cystoscopy. Lurking gonococci in the

seminal vesicles may be dislodged and destroyed by injection of a silver salt into the vas deferens. This requires an insignificant operation to expose the vas; cases thus treated have been cured or much improved. This had evidently destroyed the focus responsible for the gonorrheal rheumatism in some cases.

79. **Trauma of Urinary Apparatus and Workmen's Compensation.**—Pascual calls attention to the perils that menace a working man after a traumatism affecting the urethra. He may have apparently entirely recovered, but after a few months signs of stenosis can be discovered if carefully sought.

Acta Scholae Med. Univ. Imp. in Kioto

March, 31, 1918, **2**, No. 3. German Edition

80 *Experimental Ileus. S. Ogata.—p. 235.
81 Pharmacology of the Oxyhydro-Aromatic Bodies. Y. Sasaki and K. Okushima.—p. 257.
82 *Hemostatic Action of Gelatin. J. Ono.—p. 271.
83 *Action of Toxins on Perfused Uterus. S. Okamoto.—p. 307.
84 Influence of Pyroracemic Acid on Experimental Acidosis and Glycosuria. T. Suga.—p. 375.
85 *Disinfectants for Wounds. H. Tsuji and K. Tachibana.—p. 387.
86 *Improved Recording Instruments. A. Gohara.—p. 399.

80. **Experimental Occlusion of the Intestine.**—Ogata concludes from analysis of what has been published in this line and his own extensive experience, that in the majority of the experiments, the occlusion was not complete. The supposed total occclusion was merely more or less stenosis of the pylorus or bowel. Complete occlusion can be realized by merely ligating with a strip of fascia from the vicinity. This autoplastic material does not cut through as do all other materials. It heals organically in place and the passage is permanently closed.

82. **Hemostatic Action of Gelatin.**—Ono says that gelatin has been used as a hemostatic in China and Japan from prehistoric days, but it has been used in Europe only since Hecker (1838). He has been studying the mechanism of its action, and comparing it with other hemostatics. In the test tube it promotes the coagulation of blood, even when coagulation has been checked with extract of leeches. This confirms that the hemostatic action is due to the sticking together of the blood corpuscles, and not to an action on the walls of the blood vessel or other factor. The blood corpuscles stick together, face to face, in the coin-roll manner. Other substances which have hemostatic action cause precipitation of the corpuscles, as well as agglutination. This group includes starch, agar, abrin, alien serum, alum and copper sulphate. The substances of the gelatin group alone have a coagulating action in vitro. From the alimentary canal, however, they have no action at all.

83. **Action of Nerve and Muscle Toxins on Perfused Uterus.**—Okamoto experimented with various animals and gives forty-five tracings showing the action of pilocarpin, atropin, etc. His findings are compared with those of others and his own previous research. Among his practical conclusions is that pilocarpin must never be given to pregnant women as it exerts a stimulating influence on the motor function of the uterus as well as of the bowel. Atropin may counteract this stimulation to a certain extent. Nicotin first inhibits and then stimulates; cocain induces tetanic spasms when in a weak dilution but paralyzes in a stronger solution. Epinephrin behaves differently in different species, exerting a stimulating action in the cat, rabbit and guinea-pig, but inhibiting the rat uterus. Quinin has an inhibiting action on the nonpregnant uterus but stimulates the pregnant or puerperal uterus, as the stretched uterus fibers are more sensitive to stimulating influences of all kinds. Hence the therapeutic administration of quinin to the pregnant should be very cautious, as it might induce premature expulsion of the fetus. On the other hand, quinin might prove useful to combat inadequate labor contractions. It seems to act directly on the muscles, as its action is not checked by atropin, while quinin checks the stimulation from epinephrin. Papaverin relaxes the uterus musculature. Morphin seems to exert a similar action on the uterus in its normal place, but on the surviving and perfused uterus it di[illegible] action

85. **Wound Disinfectants.**—The findings after thirty and after sixty minutes and after twenty hours are given as the index for comparison. The deepest penetration recorded was with 5 per cent. hydrogen dioxid; next to this, 10 per cent. hydrogen dioxid; 10, 5 and 1 per cent. tincture of iodin; 1 and 2 per cent. mercuric chlorid; decinormal potassium iodid solution; alcohol; 5 per cent. phenol; 1 per cent. picric acid; 0.5 and 0.1 per cent. malachite and brilliant green, and balsam of Peru. Dakin's solution is low in the list.

86. **Improved Recording Instruments.**—Gohara gives five models of recording arms and points which register minute movements with greater precision than heretofore attained. In one, the tangential lever has an interposed spring coil to multiply the elasticity of the recording point. In another model the influence of gravity is utilized. By a further contrivance he is able to use several recording points at once. Each model is described in detail, with illustrations.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 11, 1918, **1**, No. 19

87 *Scabies. S. M. da Costa.—p. 1281.
88 *Spirochetes in Paretic Dementia. L. Bouman.—p. 1293.
89 History of Medicine in the Netherlands. F. M. G. de Feijfer.—p. 1297.
90 *Nervous Asthma and Psychoses. A. Q. v. B. Houckgeest.—p. 1298.

87. **Scabies.**—Da Costa concludes his study of scabies and its treatment by advocating sterilization of body and bed linen by immersing them in boiling water, woolen goods by ironing them with a hot flatiron. The bedsteads are wiped off with a cloth dipped in turpentine. If a sterilizing oven to disinfect the mattress, pillows, etc., is not available, he advises brushing and beating them out of doors and then shutting them up for a couple of weeks in an empty room or large box. Apart from the body, the parasites almost always die in about a week, presumably from lack of food.

88. **The Pale Spirochete in Paretic Dementia.**—Bouman was unable to find any spirochetes in his sections of brains from cases of paretic dementia until he reached his twentieth brain. Even in this brain there were only a few specimens of the spirochetes to be found. The search for them is facilitated by placing the preparations in a 1 per cent. solution of uranium nitrate for half an hour or an hour at 37 C.; the specimen is then soaked and rinsed in distilled water for a day and then in 96 per cent. alcohol for five days, then rinsed in distilled water until the sections sink, then continuing with the usual technic.

90. **Asthma and Psychoses.**—Houckgeest comments on the scanty literature on the connection between asthma and psychoses. Kelp has reported a case in which attacks of asthma alternated with a psychosis consisting of hallucinations, weakness of will and intelligence, followed by depression, distress and ideas of being poisoned. As the mental condition returned to normal, the asthma recurred. After this subsided, the man had no further trouble from this source. There had been preceding abuse of morphin and chloral in this case, and the psychosis may have been of toxic origin. Norman has also reported seven cases in which a tendency to asthma coexisted or alternated with periods of mental impairment. In only one of the seven the asthma persisted unmodified during the intercurrent psychosis, an acute melancholia. In a case personally observed by Houckgeest, the young man had had nervous asthma coming on after diphtheria as a child, and a psychosis developed about seven years ago. At present it is of the schizophrenia type. During the periods of the psychosis, the asthma seems to be mitigated but never subsides entirely. He has improved so much in the last year that he is now holding a lucrative position.

Upsala Läkareförenings Förhandlingar

1917, **22**, No. 5-6

91 Physiology of Sense of Smell. E. L. Backman.—p. 319.
92 Influence of Santonin on Vision. B. Jacobowsky.—p. 471.
93 Relations between Structure and Functioning of Nerve Elements. [illegible]hlin.—p. 501.
94 Action of Electricity on the Ciliary Movements of the Ctenophores. [illegible] Göthlin.—p. 522.